

~~SECRET~~

50X1-HUM

**CENTRAL INTELLIGENCE AGENCY**  
WASHINGTON 25, D. C.

#8

29 MAR 1962

MEMORANDUM FOR: The Director of Central Intelligence

SUBJECT : STRATEGIC MISSILE BULLETIN: "The Basic Measures for the Protection of Missile Troops Against Injury by Toxic and Radioactive Substances and Bacteriological Agents"

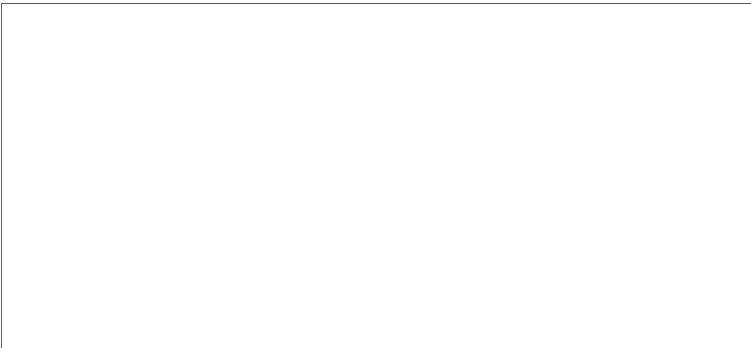
1. Enclosed is a verbatim translation of an article which appeared in a Soviet Ministry of Defense publication called Information Bulletin of the Missile Troops (Informatsionnyy Byulleten Raketnykh Voysk). This publication is classified TOP SECRET by the Soviets and was first issued in 1961. It is intended for generals and officers of the Missile Troops.

2. In the interests of protecting our source, this material should be handled on a need-to-know basis within your office. Requests for extra copies of this report or for utilization of any part of this document in any other form should be addressed to the originating office.



Richard Helms  
Deputy Director (Plans)

Enclosure



~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

Original: The Director of Central Intelligence

cc: Military Representative of the President

Special Assistant to the President for  
National Security Affairs

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

The Deputy Director of Central Intelligence

Deputy Director for Intelligence

Assistant Director for National Estimates

Assistant Director for Current Intelligence

Assistant Director for Research and Reports

Assistant Director for Scientific Intelligence

Director, National Photographic Interpretation Center

50X1-HUM

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

COUNTRY : USSR

SUBJECT : STRATEGIC MISSILE BULLETIN: "The Basic Measures for the Protection of Missile Troops Against Injury by Toxic and Radioactive Substances and Bacteriological Agents"

DATE OF INFO: July 1961

APPRAISAL OF CONTENT : Documentary

50X1-HUM

Following is a verbatim translation of an article titled "The Basic Measures for the Protection of Missile Troops Against Injury by Toxic and Radioactive Substances and Bacteriological Agents", which appeared in the 1961 First Issue of a TOP SECRET Soviet publication titled Information Bulletin of the Missile Troops (Informatsionnyy Byulleten Raketnykh Voysk). The 1961 First Issue was sent to press on 16 July 1961.

50X1-HUM

-1-  
~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

The Basic Measures for the Protection of Missile Troops  
Against Injury by  
Toxic and Radioactive Substances and Bacteriological Agents

A future war, especially in its initial period, will be characterized by the widespread use of weapons of mass destruction and primarily of nuclear/missile weapons.

Our probable enemies are paying particular attention to the development of these weapons. They do not conceal the fact that they intend to use them on an extensive scale from the very beginning of combat operations and principally against the siting areas of the missile troops. Thus, the majority of missile troop units and large units will be compelled to operate on terrain contaminated with radioactive substances with high levels of radiation. At the same time, one cannot discount the possibility that chemical and bacteriological weapons will be used by the enemy. Chemical and bacteriological weapons are regarded by our probable enemies as one of the means of mass destruction, which can be used, in combination with other types of weapons (nuclear included), against both operational-tactical and strategic objectives.

In the opinion of the Americans, forestalling an enemy in the mass use of weapons of mass destruction will result in such losses and in such disorganization of the enemy's troops that the latter's capability for resistance will be considerably reduced and a decisive influence will be exercised on the outcome of the initial period of military operations and of the war as a whole.

The creation of large areas of contamination will seriously impede missile troops in the performance of their combat tasks. At present, the methods of ensuring

50X1-HUM

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

the combat operations of missile troops while the enemy is making widespread use of weapons of mass destruction have still not been sufficiently mastered or worked out. Thus, one of the most important tasks in the combat preparation of missile troops is that of ensuring their constant combat readiness to deliver a mass strike against the enemy, under complex conditions, when the latter is using weapons of mass destruction. The performance of this task depends largely on the degree to which commanding officers, political organs, and the chiefs of the appropriate services purposefully and specifically organize and conduct the training of personnel of subunits and units in peacetime for constant readiness to fulfil a combat task under any conditions.

The contamination of terrain by radioactive substances is one of the features of a nuclear burst and is caused mainly by the fallout of the products of the fission of uranium and plutonium nuclei and also by the rise of induced radioactivity in the soil.

As they disintegrate, radioactive substances give off gamma rays and alpha and beta particles which have a harmful and injurious effect on the human organism.

The amount of radioactive radiation received by a human organism depends on the duration of irradiation and on the level of radiation and is measured as an irradiation dose in roentgens (r).

The degree of injury depends on the irradiation dose received by the human organism. Under wartime conditions, the maximum dose permissible for a human being in a single irradiation in one period of twenty-four hours is 50 roentgens, in repeated irradiations over 5 periods of twenty-four hours it is 75 roentgens and during 10 twenty-four hour periods it is 100 roentgens. A further increase in the dose results in the loss of combat effectiveness. Irradiation

50X1-HUM

-3-

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

with doses of more than 250 roentgens over not more than one period of twenty-four hours, as a rule, causes all of the personnel to lose combat effectiveness, during the actual process of irradiation or following irradiation.

Radioactive substances striking the skin and mucous membranes can cause the appearance of ulcers and of inflammations which are difficult to treat. The maximum permissible contamination of the surface of the human body by radioactive substances is 50 thousand particles (raspad) per minute per square centimeter; on the hands - 200 thousand particles per square centimeter; on clothing or on the means of antichemical protection - 200 thousand particles per minute per square centimeter, and the maximum permissible contamination of armament and combat materiel is 500 thousand particles per minute per square centimeter.

It is necessary to bear in mind that the density of contamination of terrain is defined by the amount of radioactive substance found on a unit of its surface and is expressed in curies\* per square meter. Approximately 0.2 curie/square meters or 30 to 50 million particles per minute per square centimeter corresponds to the level of radiation on terrain in 1 roentgen/hour. The above data allow one to take into consideration the maximum time for which persons can safely stay on contaminated terrain and the degree of contamination permissible for various objects.

It is known that our probable enemies attach very great significance to the use of surface nuclear bursts, with the aim of contaminating terrain.

With the beginning of military operations, the use of nuclear weapons with ground bursts will greatly increase the effectiveness of these weapons, will result in a significant increase in losses of personnel, and during a prolonged operation on the contaminated terrain troops may completely lose their combat effectiveness.

---

\*A curie is a quantity of any radioactive substance undergoing exactly  $3.700 \times 10^{10}$  disintegrations (raspad) per second.


50X1-HUM

~~4-~~ ~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM




The Americans believe that the first strike of their probable enemies against various and, for the most part, important military targets, located on US territory, will produce over 260 nuclear bursts, as a result of which radioactive contamination of terrain with radiation levels of up to 3,000 roentgens/hour one hour after the bursts will account for approximately 10 percent of the territory of the country. Seven hours after the bursts, contamination with radiation levels of up to 300 roentgens/hour will account for 30 percent of the territory of the country. An increase in the extent of the contaminated territory will also continue during the next two days. Forty-eight hours after the bursts, the contamination by radioactive substances with dangerous levels of radiation of up to 30 roentgens/hour will account for approximately 46 percent of the territory of the country.

With the infliction of such a nuclear strike, the possible loss of human life, according to an estimate by the Americans, will be roughly 70 million. Of the total losses, approximately 75 percent will occur as a result of the effects of the shock wave, the light radiation, and the penetrating radiation, while 25 percent will be due to the effects of residual radiation caused by the fallout of radioactive dust. Loss of life may be considerably greater if chemical and bacteriological weapons are used in combination with nuclear weapons.

At present, new toxic substances which belong to the class of phosphoro-organic compounds, and which far surpass Sarin and Soman in toxicity especially in their action through the skin in droplet (kapelno-zhidkiy) form, have been accepted as part of the armament of the US Army.

It should be noted that modern toxic substances are capable of causing death after an exposure of several minutes to concentrations of hundredth and thousandth parts of a milligram to a liter.

  
50X1-HUM

-5-

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

[REDACTED]

The primary means of delivering toxic substances to targets located in the deep rear area are the guided cruise missiles "Matador" (maximum range 1,240 kilometers) and "Snark" (maximum range 10,000 kilometers). The basic method of delivering toxic substances to a target with these missiles is by equipping the cruise missiles with small chemical bombs which are ejected from the warhead in flight at a specific altitude, thus ensuring their effective dispersion and the creation of an injurious concentration of toxic substances in the target area.

Of the types of missile used to scatter bacteriological (bakterialnyy) agents from the air, the cruise missile "Regulus-1" (maximum range 800 kilometers) can be used; pilotless aircraft are also used for dispersion.

The Americans believe that with ten B-52 bombers it is possible to contaminate an area of up to 3.9 million square kilometers with pathogenic agents (vozbuditel bolezni). The losses of life in this area from the use of bacteriological agents may amount to 70 to 78 percent.

Thus, the possibility of the mass use by the enemy of weapons of mass destruction makes it necessary to organize and to put into effect an orderly system of antiatomic and antichemical protection among the missile troops.

#### The Organization of Troop Protection Against Radioactive and Toxic Substances

The protection of missile troops against weapons of mass destruction consists of a complex of measures concerning protection against the destructive factors of a nuclear burst - the shockwave, light radiation, penetrating radiation, and radioactive contamination - and also concerning protection against toxic substances and bacteriological agents. In view of the special

[REDACTED]

50X1-HUM

-6-

~~SECRET~~

[REDACTED]

50X1-HUM



~~SECRET~~

50X1-HUM

[REDACTED]

combat characteristics of weapons of mass destruction, the carrying out of these measures requires the use of special technical means and of a special organization.

Antichemical protection is part of the whole complex of measures concerning protection from the weapons of mass destruction and is aimed at averting injury to troops by toxic and radioactive substances and to a large extent by bacteriological agents. Antichemical protection must be organized in such a way as to afford reliable protection for the troops against the direct effect of toxic substances and at the same time to protect them against radioactive substances and bacteriological agents.

To attain this goal, the following measures must be carried out:

- notification of the troops of chemical attack, of radioactive contamination, and of the use of bacteriological agents;

- the conduct of continuous radiation and chemical reconnaissance;

- the antichemical preparation of a variety of shelters;

- the supply to the troops of means for protection and the carrying out of measures concerning the protection of troops against injury by toxic and radioactive substances;

- the protection against contamination of armament, combat equipment, and other objects;

- the decontamination of various objects and checks on the condition of personnel subjected to the effects of toxic and radioactive substances.

[REDACTED]

50X1-HUM

-7-

~~SECRET~~

[REDACTED]

50X1-HUM

~~SECRET~~

50X1-HUM

[REDACTED]

Together with measures for antichemical protection, equivalent measures for antiatomic and antibacteriological protection are taken.

The organization of measures for the antichemical protection of the missile troops has some special features. The following can be numbered among these:

- the disposition of units and large units in permanent (fixed) siting areas;
- the isolation of units and subunits, their independence in carrying out combat operations;
- the limitation or complete absence of maneuver;
- the necessity to remain in contaminated terrain for a prolonged period.

The fixed disposition of the siting areas of missile troops allows one to prepare more fully for antichemical protection in peacetime, taking into account all the features of the conduct of combat operations by missile units and subunits.

#### Notification

Notification is an important measure in the system of protecting missile troops against the danger of injury by toxic and radioactive substances and bacteriological agents. It is organized with the aim of carrying out the steps necessary for protection in good time.

Common notification signals for all subunits, units, and large units of nuclear attack, chemical attack, radioactive contamination, and the use of bacteriological agents should be established in the interests of timely and rapid notification of the missile troops and of avoidance of confusion with other signals.

[REDACTED]

50X1-HUM


~~SECRET~~

[REDACTED]

50X1-HUM

~~SECRET~~

50X1-HUM



The greatest danger of troop injury by nuclear, chemical, and bacteriological weapons arises during a surprise attack by the enemy. The decision concerning the timely performance of measures for the immediate protection of the personnel of any missile troop units and large units at the threat of a nuclear attack must be the function of the Main Staff of the Missile Troops of the army staffs, and of independent corps.

A signal concerning a chemical attack, radioactive contamination, or the use of bacteriological agents can be given by a divisional commanding officer, by unit and subunit commanding officers, by chemical observation posts, or by observers.


A signal giving notification of a chemical attack is given by a unit (subunit) commanding officer if the enemy has carried out a chemical attack in the unit's (subunit's) disposition area or if there is danger of the spread of contaminated air from other sectors which have been subjected to a chemical attack, and at the threat of contamination of the unit's (subunit's) disposition area by radioactive substances formed as the result of surface nuclear bursts.

Immediate notification of the personnel of subunits up to and including battalion (division) level can be provided by audible signals (loudspeaker communications and sirens).

Light signals made with flares give away the static (pozitsionnyy) combat formation and are therefore unacceptable for missile troops.

#### Radiation and Chemical Reconnaissance

Knowledge by commanding officers of the chemical and radiation situation has particular significance when the enemy is using weapons of mass destruction. Chemical and radiation reconnaissance is conducted with the aim of timely detection of the onset of radioactive contamination,

  
50X1-HUM

-9-

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

of enemy use of toxic substances and bacteriological agents, and of the rapid determination of the contaminated areas and of the nature of the contamination. Reconnaissance data on enemy use of toxic substances and on radiation levels must be conveyed to the troops in a very short period of time in order to avoid severe injury to the personnel.

These tasks can be performed only through the employment of intricate technical equipment with great sensitivity and automatic operation. For the servicing of the equipment specially trained chemical and radiation reconnaissance subunits, which are not occupied with the performance of other tasks, are needed.

Timely warning of personnel of the danger of injury from toxic and radioactive substances is possible through the availability of chemical reconnaissance patrols or of chemical observation posts from the chemical and radiation reconnaissance subunits in the immediate areas of the battalion's launching sites, at command points, and also along supply and evacuation routes.

The principle of independence must form the basis of the organization of chemical, radiation, and bacteriological reconnaissance in the missile troops, because of the wide dispersion of subunits and units throughout the siting area. As a rule, subunits and units will decide independently when it is necessary to put on or to take off means for individual protection and when to take measures for the elimination of contamination. This requirement can be fulfilled only when the necessary forces and means of chemical and radiation reconnaissance are available.

In launching batteries, chemical and radiation reconnaissance must be conducted by a system of chemical observation posts, which in a battalion and a regiment must be conducted by a system of chemical observation posts and patrols.

50X1-HUM

-10-

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

[REDACTED]

In a missile regiment it is necessary to have chemical and radiation reconnaissance down to platoon level. Since a missile battalion usually operates in an area of 1 to 2 square kilometers, and a missile regiment in an area of up to 20 square kilometers, it is necessary to carry on constant and direct reconnaissance at the launching sites, in the command post areas, in the dispositions of the rear area subunits and along the supply and evacuation routes, for the timely receipt of data on the chemical and radiation situation.

At present, missile units do not include in their composition the necessary quantity of organic forces and means for chemical and radiation reconnaissance. Consequently, it is necessary to use supernumerary (chemically equipped) (khimizirovanny) sections and groups in launching batteries and battalions for the organization of chemical, radiation, and bacteriological reconnaissance in subunits.

An organic section of a regiment's chemical and radiation reconnaissance carries out radiation and chemical observation at the command post and, in case of necessity, it is used to conduct chemical and radiation reconnaissance of routes and of the launching sites in the primary and alternate siting areas. In addition, it can conduct a dosimetric check on the irradiation of personnel and on the radioactive contamination of armament and combat materiel.

Radiation and chemical observation in a battalion and in launching batteries must be carried out by the chemical observation posts to which some of the trained soldiers and NCO's of the subunits are detached. The observation posts and observers must be provided with instruments for radiation and chemical reconnaissance.

In order that sufficiently accurate reports on radiation levels may be received from the chemical observation posts of the subunits and units, their locations must be so equipped that, in the event of contamination

[REDACTED]

50X1-HUM

-11-

~~SECRET~~

[REDACTED]

50X1-HUM

~~SECRET~~

50X1-HUM


of the terrain by high levels of radiation, the measurement of contamination can be carried out without leaving the post. For this, the absorption coefficient of the overhead cover (koeffitsient oslableniya perekoytiya) of the shelter in which the personnel of the chemical observation post are located should be accurately known.

The experience of a series of operational exercises indicates that under conditions of radioactive contamination the receipt of information on the radiation situation solely from chemical observation posts or chemical reconnaissance patrols takes a long time and cannot satisfy the command, mainly at the divisional or army level. The method of evaluating the radiation situation by graphic computation (raschetno-graficheskiy) can provide a considerable gain in time.

The forecasting of the radiation situation by the method of graphic computation permits the determination, comparatively soon after the delivery of enemy nuclear strikes, of approximate data on possible radioactive contamination and the determination of the units which may very shortly find themselves on contaminated terrain. The receipt of such data allows appropriate orders on the timely adoption of the necessary protective measures to be given to troops who are threatened by radioactive contamination.

To determine the approximate overall situation on radioactive contamination from surface nuclear bursts, the following data are necessary; the area and yield of the nuclear burst, the direction and the speed of the average wind up to the altitude to which the radioactive cloud is rising.

Data on the time, place, and yield of the nuclear burst can be received from the PVO posts, which data on the speed and direction of the average wind should be systematically received from the meteorological service of the missile troops.

  
50X1-HUM

-12-

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

On the basis of the method of graphic computation, the anticipated contamination level of the missile troop units and large units is ascertained, and it is established which troops may find themselves on terrain with high levels of radiation, after which a decision is reached with the respective commanding officer on the future operations of the troops.

The use of the graphic computation method for the evaluation of the radiation situation of missile troops can be of particular use to the staffs of units, large units, and formations.

For the appraisal of the radiation and chemical situation, for the preparation of proposals for the respective commanding officers concerning troop operations when the enemy is using weapons of mass destruction and on procedure for the elimination of the after-effects of a chemical attack and of radioactive contamination, a radiation and chemical situation map is drawn up: a 1:100,000 scale map for the staff of a missile regiment, a 1:100,000 to a 1:500,000 scale map for the staff of an army (of an independent missile corps).

The following are entered on the map:

-the siting areas, up to missile battalion inclusive, and the disposition of chemical observation posts;

-the limits of areas contaminated by radioactive and toxic substances, the levels of radiation and the types of toxic substances, and the fallout time of the radioactive substances;

-the depth of the spread of toxic vapors;

-the abatement of radiation levels;

-data on the weather.

50X1-HUM

-13-

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

The map should have a legend showing:

- the possible radiation doses of personnel;
- the time for which units and subunits are to be permitted to remain in contaminated areas;
- the approximate time for which the personnel of subunits are to stay in shelters to work subsequently on contaminated terrain, until they have received the radiation dose which has been established as permissible.

After working out and entering the data on the radiation and chemical situation map, the chief of the chemical service (of the unit, large unit, or formation) reports to the commanding officer the brief conclusions from his evaluation of the radiation and chemical situation and proposals for future troop operations which arise from this situation.

The following questions must be dealt with in the report:

- the effect on the troops of the enemy's use of chemical weapons and radioactive contamination (approximate radiation levels in the troop disposition areas, possible radiation doses of personnel and of units subjected to contamination by toxic substances, the stability of the toxic substances on the terrain);
- measures to preserve the combat effectiveness of the troops;
- the time necessary to carry out measures concerned with the elimination of the after-effects of radioactive contamination and of the enemy's use of chemical weapons;
- the forces and means which are necessary.

-14-

~~SECRET~~


50X1-HUM

50X1-HUM



  
~~SECRET~~

50X1-HUM




After the respective commanding officer has reached a decision, the chief of the chemical service obtains more precise data on the radiation levels and on the chemical situation through the chemical and radiation reconnaissance subunits and the chemical observation posts of the units and large units and organizes the elimination of the after-effects of the enemy's use of chemical weapons and radioactive contamination.

The Antichemical Preparation of Siting Areas  
and the Supply to the Troops of Means for Protection

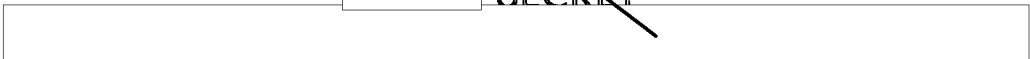
With the view of protecting personnel against weapons of mass destruction collective means of defense must be prepared in advance in the siting areas of missile units. When the enemy is using weapons of mass destruction, only prepared structures will provide reliable and lasting protection without the use of individual means of protection. Since missile subunits and units may be forced to operate for a prolonged time under the effects of radioactive and toxic substances the anti-chemical preparation of shelters takes on particular significance.

Collective means of protection are the most important means for troop protection against nuclear weapons and, furthermore, are a reliable means of protection against chemical and bacteriological weapons and radioactive substances.

The siting areas of missile troops must have a different type of shelter, prepared against chemical effects and providing simultaneous protection for all personnel. This requirement is dictated by the fact that, with surface nuclear bursts, the siting area of a missile regiment or of a division may be contaminated with radioactive substances with radiation levels of 500 to 600 roentgens/hour and more. In an area with such radiation levels, personnel will receive the permissible radiation dose of 50 roentgens within approximately 8 to 10 minutes. Consequently, if there are no shelters,

  
50X1-HUM

-15-

  
~~SECRET~~  
50X1-HUM

  
~~SECRET~~  


50X1-HUM

personnel who have survived the shockwave and the light radiation will be injured by the radioactive substances and will lose combat effectiveness.


Filter ventilation units (filtro-ventilyatsionnyye komplekty), FVKP-M-1 and FVKP-M-2, by means of which the air supply in the premises is renewed, are used for the antichemical equipment of the shelters. The air fed into the structure is first cleansed of toxic and radioactive substances and of bacteriological agents. In addition, the shelter protects the personnel from radioactive radiation in a practical way.

While shelters are being used, all the rules for their operation must be strictly observed. Responsibility for the serviceability and safekeeping of the shelter's internal equipment and for its proper operation rests with the commanding officer of the subunit occupying the shelter.

The personnel of the subunit must know definitely which shelters they are to occupy upon signals of the danger of nuclear attack and of chemical attack.

When personnel are operating on contaminated terrain and subsequently enter a shelter, the outer clothing and equipment are left in the air lock antechamber (predtambur) after preliminary and partial degassing or deactivation. Personnel are categorically forbidden to enter the shelter with visible drops of toxic substances, or, during radioactive contamination, with dirt and snow on their clothes or footwear.

One may leave a shelter only with the approval of the commanding officer of the subunit after determining the contamination level of the terrain and the air. The shelter detail (naryad) watches the contamination of the shelter. The contamination by radioactive substances of the internal surfaces of a shelter and of its internal equipment must not exceed the maximum permissible level ( $1.10^5$  particles in a minute per square centimeter of surface area).

  
50X1-HUM

-16-

  
~~SECRET~~  


50X1-HUM

[REDACTED] ~~SECRET~~

50X1-HUM

[REDACTED]

Thus, the proper use of shelters while the enemy is using weapons of mass destruction, ensures reliable and lasting protection for personnel. It is therefore necessary for commanding officers at all levels to give great attention during troop training to questions of the use of means for collective protection.

Missile troops are provided with the same means for antichemical protection as ground troops. The expenditure of individual means of antichemical protection by missile troops will not exceed the expenditure of these means by the ground troops, and in a number of cases it will be considerably lower. This is explained by the fact that missile troops can make wider use of means of collective protection than ground troops. In addition, the protective power of the existing filter gas mask ensures the protection of the respiratory organs, in practice, for the whole period during which a missile operation is being conducted. It is therefore necessary to provide a reserve of gas masks for the replacement of losses because of mechanical damage and technical defects. In setting up reserves of means of antichemical protection for the period of missile operation, one must start from the time when they are received for replenishment from those district (front) depots of the district (front) on the territory of which the missile troops are located.

In view of the great dispersion of missile troop units and subunits, the reserve of means of antichemical protection should be created basically in battalions and regiments and not in divisions. This will ensure the rapid replenishment of chemical equipment during combat operations.

The sizes of reserves of chemical equipment must be established on the basis of covering losses in the course of a missile operation.

Proceeding from the average daily expenditure of chemical equipment in a missile regiment, approximately the following reserves are needed at the beginning of an operation:

[REDACTED]

50X1-HUM

-17-

[REDACTED] ~~SECRET~~

[REDACTED]

50X1-HUM

~~SECRET~~

50X1-HUM

Units and Subunits	Sizes of Reserves in Percentages of T.O.E.				
	gas masks	Protective Clothing (Set No. 1)	Chemical Radiation Reconnaissance Means	Degassing Substances	Decontami- nation Substances
Missile Regiment	6 to 8	15 to 20	5	1 unit (zaryadka)	1 unit
Missile Battalion	3 to 4	10 to 15	-		1 unit
Total in a Regiment	9 to 12	25 to 35	5	1 unit	2 units

Note: A combined arms protective raincoat, protective socks and gloves are included in set No. 1 of the protective clothing.

-18-

~~SECRET~~

50X1-HUM

50X1-HUM

~~SECRET~~

50X1-HUM

If the reserves shown in the table are available in a regiment and a battalion, the covering of their expenditure during a missile operation, until the receipt of chemical equipment replenishments from district (front) depots is ensured.

The protection of personnel against injury by radioactive and toxic substances is ensured by timely and complete supply of means of antichemical protection and also by the constant maintenance of these means in good condition. This requirement applies particularly to gasmasks, which must not only be hurried to the personnel but also checked on the premises with toxic substances.

Eliminating the After-Effects of Chemical  
Attack and Radioactive Contamination

For restoration of the combat readiness of troops subjected to the effects of chemical attack and radioactive contamination, the timely and rapid conduct of measures for the elimination of the after-effects of this attack has great significance.

A feature of the organization and execution of measures for the elimination of the after-effects of chemical attack and radioactive contamination in missile units and large units is that there are no chemical protection subunits for this purpose in their organizational structure. Missile troop units and subunits must therefore rely exclusively on their own forces and means in carrying out measures to eliminate the after-effects of chemical and radioactive contamination.

The elimination of the after-effects of chemical attack and radioactive contamination directly in the combat formations of missile troops consists essentially of the medical processing of personnel and of the degassing and decontamination of armament, of combat materiel, and of launching sites, using authorized and improvised means, and is carried out by the forces of the subunits themselves.

50X1-HUM

-19-

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

The supply to the troops of the necessary quantity of individual and group outfits (komplekt) for the special processing of tractor equipment and the use of cleansing and neutralizing (obmyvochno-neytralizatsionny) and fire trucks for the special processing of armament and combat materiel will permit the complete degassing, decontamination, and disinfection of combat materiel to be carried out directly in the subunits.

Organization of the complete elimination of the possibilities of contamination of personnel with radioactive and toxic substances and bacteriological agents directly at the launching platforms and on the routes connecting the launching platforms with the various storage places and shelters is the most important task for the missile troops during wide-scale contamination.

The basic aim of complete special processing is to decrease contamination to the level at which the possibility of working without protective means is created for personnel servicing combat materiel and ground equipment over a long period and at which, during the occupation of shelters, the possibility that the products of nuclear burst might drift into the internal premises of the structure will be excluded.

To supply the troops with a sufficient number of group degassing sets, these must be prepared by workshop units, using standard barrels with a capacity of 100 to 200 liters.

The use of cleansing and neutralizing and fire trucks for complete special processing ensures that radioactive and toxic substances, together with the surface layer of dirt, are almost completely washed from the surfaces. Washing with a stream of water under pressure, using washing materials, makes the servicing even more effective.

50X1-HUM

-20-

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

The special servicing of combat materiel and ground equipment will be carried out, as a rule, at the launch sites and not at specially appointed platforms and posts. This is connected with the fact that missile combat materiel and the special vehicles will be serviced without being withdrawn to uncontaminated terrain.

Estimates show that a division will require not more than 1.5 to 2 hours for the complete special servicing of armament, combat equipment, and transport by the forces and means of subunits.

It is advisable to organize the degassing and the disinfection of clothing, equipment (snaryazheniye) and of the means of antichemical protection on the scale of a missile division. In the subunits of a missile regiment only the exchange of contaminated items of clothing and of means of antichemical protection for noncontaminated ones should be carried out.

The complete medical processing of the personnel of the launch battalions must be conducted in stationary bath houses. The existence of stationary bath houses at combat complexes makes it comparatively easy to organize and conduct the complete medical processing of the personnel by the forces and means of a regiment's subunits.

The decontamination (obezzarazhivaniye) of terrain on combat complexes without chemical subunits can be carried out on a limited scale, since the decontamination of all the routes to the launch sites is in practice impossible for the subunits of a missile regiment. It is therefore necessary to carry out the degassing and decontamination solely of the launching platforms and of the road sectors leading from the launching platforms to the different storage places, to the locations of personnel, of power units and servicing equipment, of control points, and of the separate sectors of storage places.

50X1-HUM

-21-

~~SECRET~~

50X1-HUM

~~SECRET~~

50X1-HUM

[REDACTED]

The total area of these installations in a missile battalion may exceed 3 to 4 hectares. Since missile units do not have chemical subunits for the degassing of terrain, cleansing and neutralizing trucks can be brought in for this purpose.

It should be remembered that in the process of complete decontamination of materiel and armament, a great quantity of decontamination substances or water will be required. For example, for the decontamination of the entire surface of the body of a (kuzovnoy) vehicle nearly 100 liters of solution or more than 600 to 700 liters of water are needed, while for the complete decontamination of materiel and ground equipment approximately 4 to 5 cubic meters of decontamination solutions or over 45 cubic meters of water will be required for a missile battalion.

Thus, for the elimination of the after-effects of chemical attack and of the radioactive contamination of launching subunits, the most urgent task is to ensure the complete elimination of contamination of personnel and combat materiel in the place where the contamination occurs. The performance of this task can be achieved only if special servicing is conducted independently by subunits.

These, basically, are some of the questions of the protection of missile troops against radioactive and toxic substances.

[REDACTED]

50X1-HUM

~~SECRET~~

[REDACTED]

50X1-HUM