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CENTRAL INTELLIGENCE AGENCY

WASHINGTON, D.C. 20505

2 June 1978

MEMORANDUM FOR: The Director of Central Intelligence

FROM : John N. McMahon  
Deputy Director for Operations

SUBJECT : MILITARY THOUGHT (USSR): Actions by Troops  
in Zones of Radioactive Contamination  
in a Battle and Operation

1. The enclosed Intelligence Information Special Report is part of a series now in preparation based on the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. This article is a review of a book which deals with the subject of negotiating zones with high levels of radioactive contamination. The author of the present article disagrees with certain propositions advanced by the book and notes some shortcomings in it. For example, the book states that the greatest damage is caused by radioactive substances when they get inside the body, whereas the reviewer believes that external radiation is a greater threat. The reviewer also thinks that a commander cannot make a sound decision based on forecast data alone, and that the data need to be augmented by aerial reconnaissance. This article appeared in Issue No. 3 (64) for 1962.

2. Because the source of this report is extremely sensitive, this document should be handled on a strict need-to-know basis within recipient agencies. For ease of reference, reports from this publication have been assigned

*JNM*  
John N. McMahon

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# Intelligence Information Special Report

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COUNTRY USSR

[Redacted]

DATE OF INFO. Mid-1962

DATE 2 June 1978

SUBJECT

MILITARY THOUGHT (USSR): Actions by Troops in Zones of Radioactive Contamination in a Battle and Operation

SOURCE Documentary

Summary:

The following report is a translation from Russian of an article which appeared in Issue No. 3 (64) for 1962 of the SECRET USSR Ministry of Defense publication Collection of Articles of the Journal 'Military Thought'. The author of this article is Colonel G. Luzgin. This article is a review of a book which deals with the subject of negotiating zones with high levels of radioactive contamination. The author of the present article disagrees with certain propositions advanced by the book and notes some shortcomings in it. For example, the book states that the greatest damage is caused by radioactive substances when they get inside the body, whereas the reviewer believes that external radiation is a greater threat. The reviewer also thinks that a commander cannot make a sound decision based on forecast data alone, and that the data need to be augmented by aerial reconnaissance.

End of Summary

[Redacted] Comment:

After 1962 the SECRET version of Military Thought was published three times annually and was distributed down to the level of division commander. It reportedly ceased publication at the end of 1970. [Redacted] version of this article was distributed [Redacted]

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Actions by Troops in Zones of Radioactive  
Contamination in a Battle and Operation

by

Colonel G. LUZGIN

Radioactive contamination is likely to be a common phenomenon when waging missile/nuclear war. It will be caused by ground or low air bursts of nuclear warheads and will encompass a considerable expanse of territory. Enormous centers of radioactive contamination will be created not only in the deep rear of the belligerents, but also in areas where combat actions are being conducted, and in adjacent territories.

The danger of the mass destruction of troops as a result of radioactive contamination makes it necessary to develop ways of preserving the combat effectiveness of troops and successfully conducting combat actions when the effect of radioactive substances lasts over an extended period of time. Solving this problem involves choosing the most advantageous methods of troop actions, and efficiently using means of protection and the methods of employing them. For this reason the book entitled Negotiation of Zones with High Levels of Radioactive Contamination by Troops of a Tank Army,\* written by a team of authors, is of unquestionable interest.

A correct solution to the problems involved in troop actions under conditions of radioactive contamination of the terrain is possible only through an accurate and timely assessment of the danger of radioactive contamination, its extent, and the possible consequences of its effect on the troops. It is therefore entirely natural that the book begins with a description of zones of radioactive contamination. However, certain propositions advanced by the authors are open to serious challenge.

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\* Negotiation of Zones with High Levels of Radioactive Contamination by Troops of a Tank Army. Published by the Order of Lenin Military Academy of Armored Troops. Moscow, 1961, 142 pages, 4 drawings, and 15 charts.

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In assessing the danger of radioactive contamination the authors state that "radioactive substances cause the greatest damage when they get inside the body, when contaminated air is inhaled, or when they pass through the skin (page 14)." Of course, radioactive substances which get inside the body (mainly through the respiratory organs) can have serious consequences, particularly during actions in sectors of an "old fallout pattern." But by employing even the simplest means of protection (of the respirator type) it is possible to effectively protect the respiratory organs. And the danger of damage to the body by radioactive substances entering through the skin is extremely slight, even in the event of considerable contamination of one's clothing. For example, when clothing is contaminated with "old" fallout material five to seven times greater than the acceptable norm, the dose of external irradiation from gamma radiation amounts to 30 to 50 roentgens after the clothes have been worn for a month. Shaking out and dusting off the clothing will make it possible to reduce the contamination five- to tenfold.

During actions by troops in a radioactively contaminated area, the greatest danger to them will be external irradiation from the contaminated area, since special structures will be needed for sufficiently reliable protection of the troops from this kind of irradiation. But we should not of course disregard the other danger -- damage caused by the entry of radioactive substances into the body.

In examining the possibilities of creating zones of contamination, the authors proceed from the premise that a zone may be formed by the enemy in any desired area. Material published in the press on full-scale tests conducted by the Americans do not bear out this proposition. Quite often radioactive clouds have spread in the exact opposite direction to the one expected. And this is no accident. The formation of a zone of contamination is influenced by a number of complex interlocking factors. Taking all of them into account with existing means is not yet possible. Therefore, the system worked out by the authors of creating planned and interacting zones of contamination remains unresolved (pages 19-22).

It would appear more correct to proceed on the assumption that zones of contamination will most often develop as a concomitant factor in the delivery of ground nuclear strikes against means of nuclear attack, groupings of troops, industrial and economic centers, communications centers, and other targets. Employing nuclear warheads for the sole purpose of radioactive contamination will probably occur relatively infrequently.

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The authors have not dealt with a possible radiation situation during the first operations of the initial period of a war, when it will be the most complex and dangerous. It may be expected that as early as the first hours and days of a war enormous territories will be subjected to radioactive contamination. Thus, according to calculation data, the first nuclear strike at an exercise conducted in a Group of Soviet Forces would result in the contamination of an area 200 by 200 kilometers.

A correct understanding of the danger of radioactive contamination, and the conditions under which troops will have to operate, is possible only through a sufficiently thorough presentation of the basic indicators that characterize a zone of contamination (its dimensions, configuration, the distribution of radiation levels, and changes in them depending on the time that has elapsed since the burst), as well as indicators showing the destructive effect of radioactive substances. These questions, which are of great practical importance, are unfortunately not covered in the book.

The book devotes a great deal of space to measures for increasing the capabilities of a tank army when negotiating zones of contamination. A number of them, such as preparation of equipment, early training of troops for actions under conditions where zones of contamination have formed, and certain others, are unquestionably of interest. At the same time the validity of some of the recommendations is open to serious doubt. For example, it will hardly be possible under combat conditions to form marching columns from equipment having equal speeds of movement. The data contained in Table 1 (page 26) are for the most part of no practical significance, since the movement of combat and transport vehicles at speeds of 50 to 120 kilometers an hour when negotiating zones of contamination is impossible.

In the author's opinion a tank army and every tank division can negotiate a zone of contamination from the march after a drop in radiation levels or by a combined method (part of the forces from the march, the rest after a drop in radiation levels). On the whole these propositions are not open to challenge -- with the exception of negotiating a zone of contamination by air.

In our view an army is unlikely to be able to carry out a transfer of troops by air. It does not have the means for doing so. Furthermore, a transfer of large contingents of troops by air is unlikely to produce the desired result, since it requires a considerable amount of time and the availability of a large number of transport aircraft (helicopters). It is likely that under these conditions one may speak of transporting only

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tactical airborne landing forces, control posts, and certain engineer and rear services subunits.

In studying methods of negotiating a zone of contamination, the authors have been unable to avoid a certain narrowness of outlook and an adherence to one particular situation (pages 36-40). In determining methods of troop actions it is essential to bear in mind that the nature and scope of radioactive contamination may be highly diverse, as may the situational conditions under which the troops will have to operate. For example, events will develop one way when the zones of contamination are formed within the disposition of our troops, and another way when the troops have to wage an offensive while negotiating zones of contamination. The actions of the troops will be greatly influenced by whether a zone has already been formed or whether this process is only beginning. Nor can we fail to consider the positions of the zones and the directions of the spread of radioactive clouds with respect to the troops. The distribution of radiation levels in a zone of contamination is not uniform. In large territories subjected to radioactive contamination, areas with high radiation levels will be formed, having various configurations (particularly in multiple fallout zones). Such areas will be separated from each other by sectors with low levels of radiation, or even some which are completely uncontaminated. And the areas with high levels reach their greatest extent during the formation of the zone of contamination, particularly in the first two hours after the burst. In a single-fallout zone of contamination that has formed, the relative proportion of areas with high radiation levels in relation to the entire area subjected to contamination is relatively small.

The nature of zones of contamination and the distribution of radiation levels will naturally have a considerable effect on the actions of troops when they are negotiating a zone of contamination. But the authors confine themselves merely to the general formulation that a tank army (division) can negotiate a zone of contamination from the march, after a drop in radiation levels, or by a combined method (pages 37 and 47). Such a statement is inadequate when it comes to explaining the methods of troop actions under such conditions of a radiation situation.

The subject receiving the most attention in the book is the organization of the actions of the troops of a tank army, particularly the methods of assessing a radiation situation and the work of the commander and staffs of an army or division in organizing the negotiation of zones of radioactive contamination (pages 52-62).

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The section 'Methods of Assessing a Radiation Situation' contains a number of useful and practical pointers on how to determine possible doses of radiation, the degree of contamination of combat equipment, and on the choosing of routes or axes of movement. But one cannot agree with all the recommendations.

For example, in the authors' opinion the commander of an army may make a decision to evacuate troops from threatened areas, and determine the method of negotiating a zone and the subsequent actions of the army, on the basis of forecast data on the radiation situation (page 65). In our opinion this is hardly possible.

The fact of the matter is that when forecasting radioactive contamination by existing methods and means it is practically impossible to take account of all the factors affecting the formation of a zone of contamination. As a result major miscalculations are possible and troops could find themselves in extremely complex and dangerous radiation conditions and sustain heavy losses.

Of course, forecasting radioactive contamination makes it possible to a certain extent to foresee the possible nature of the radioactive contamination. But the forecast data must be refined as quickly as possible by radiation reconnaissance. And particularly in those cases where the zone is just forming it will be necessary for aerial reconnaissance forces to conduct continuous observation of the spread of radioactive clouds, and use the observation data of the troops operating forward (forward detachments, reconnaissance subunits, and adjacent units). In the light of these facts one can hardly agree with the idea of rejecting radiation reconnaissance before the completion of the formation of the zone of contamination (page 53), as the authors of the book propose.

In our view there is also no need to divide assessments of a radiation situation into incomplete (preliminary) and complete. The solution of the problems included by the authors under the concept of an incomplete assessment (page 54) is for all practical purposes impossible without a complete assessment of the radiation situation. Moreover, the assessment of this situation must always be as complete as possible, and be made in the shortest possible time.

In discussing the work of the commander of a tank army and the commander of a tank division, the authors analyze in some detail the working out of a decision to negotiate a zone of contamination, the content of the concept of the actions, the assignment of the tasks of organizing



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chemical and radiation reconnaissance, and certain other questions which unquestionably will be of interest to the reader.

The book correctly emphasizes that the organization of troop actions under conditions where zones of contamination are forming will take place in an extremely limited space of time. However, this correct thesis is not supported with appropriate practical recommendations. Moreover, the proposed hearing of reports of numerous officials, and the methods of conveying the tasks to the troops, will inevitably require a considerable -- and, what is more, useless -- expenditure of time, under conditions where every moment's delay is fraught with danger.

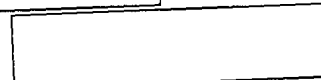
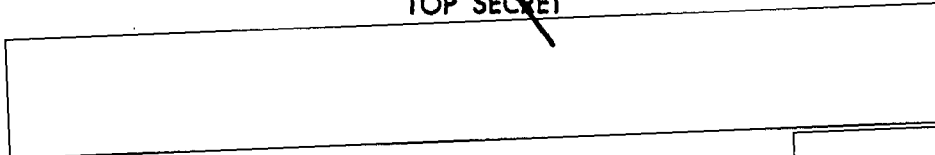
Preserving the combat effectiveness of troops from destruction by radioactive substances will depend to a considerable extent on the skilful organization of engineer, materiel, and tank-technical support for troops when they are negotiating zones of radioactive contamination. It is therefore entirely proper to include in the book a separate chapter dealing with these questions. It contains a number of useful recommendations, particularly on rear services and tank-technical support. But the contents of the chapter still cannot fully satisfy the reader.

In discussing engineer support for troops when negotiating zones of contamination, the authors have resorted chiefly to restating the most important propositions on the employment of engineer means in an offensive. It is therefore extremely difficult to grasp the particular features of engineer support under the conditions being discussed. But such features probably will exist. For example, when negotiating zones of contamination -- particularly areas with high radiation levels -- it will be necessary to tend primarily toward the use of sectors of roads that are still intact and passable sectors of terrain. Work on equipping routes and opening up passages through barriers (when it is impossible to go around them) must be carried out simultaneously in several areas. Otherwise it will be impossible for the troops to maintain a high speed of movement.

Furthermore, during negotiation of a zone of contamination, as a result of a drop in radiation levels and the formation of new zones of contamination during enemy nuclear strikes, it will become necessary to change the directions of troop movements, and accordingly equip new routes of movement. For this reason the early spotting of alternate routes, and the establishment of reserves of engineer forces and means and a quick maneuver by them, take on extremely great importance.

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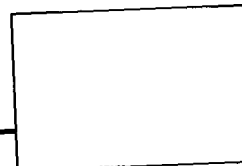
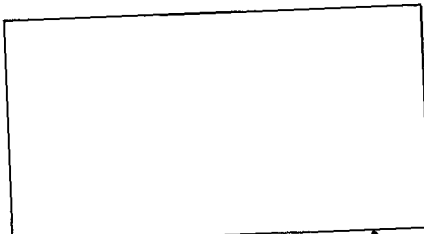
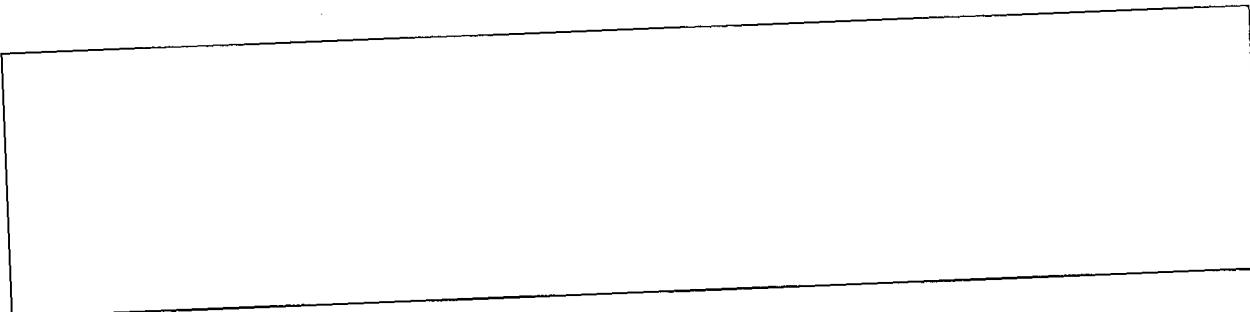


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Original engineer decisions will be necessary when negotiating zones of contamination created by the enemy on approaches to water obstacles, and when he is delivering nuclear strikes against these obstacles. But these questions too, which are extremely important and timely, have been bypassed in the book.

Also receiving inadequate coverage are such questions as the organization of medical support, protection of personnel from damage caused by radioactive substances, and of combat equipment from contamination by radioactive dust. The structure of the book also leaves something to be desired -- there are many repetitions and few proofs -- and as a result the book is not easy to read.

Summing up, one may say that the team of authors has performed a major and useful work, and there is no doubt that upon elimination of existing shortcomings the book may become a good aid not only for teaching students, but also for the troops.



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