



Director of
Central
Intelligence

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The Soviet Offensive Chemical Warfare Threat to NATO

Special National Intelligence Estimate

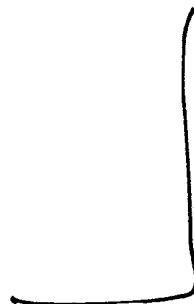
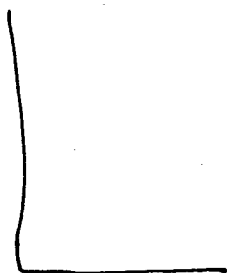
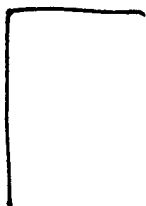
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CIA HISTORICAL REVIEW PROGRAM
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SMI 11-172-801
NOVEMBER 1962
20 November 1962

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SNIE 11/17-2-84/L

THE SOVIET OFFENSIVE
CHEMICAL WARFARE THREAT TO NATO

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THIS ESTIMATE IS ISSUED BY THE DIRECTOR OF CENTRAL INTELLIGENCE.

THE NATIONAL FOREIGN INTELLIGENCE BOARD CONCURS, EXCEPT AS NOTED IN THE TEXT.

The following intelligence organizations participated in the preparation of the Estimate:

The Central Intelligence Agency, the Defense Intelligence Agency, the National Security Agency, and the intelligence organization of the Department of State.

Also Participating:

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, Department of the Air Force

The Director of Intelligence, Headquarters, Marine Corps

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SCOPE NOTE

This Estimate outlines our knowledge of present and projected Soviet chemical warfare capabilities, and focuses on the question of Soviet intent to employ chemical weapons under the various conditions that might pertain during a NATO-Warsaw Pact war. The Estimate identifies the areas of agreement within the Intelligence Community, and carefully defines those areas in which the opinions of the agencies divide. A comprehensive treatment of the entire Soviet chemical and biological warfare program will be presented in NIE 11/17-85, scheduled for publication in May 1985.

This issue is uniquely significant because of the asymmetry of chemical warfare capabilities between NATO and the Warsaw Pact. On the one hand, the Soviets have a chemical warfare capability that could inflict substantial damage on selective NATO targets, while NATO's limited ability to reply in kind—based on aging US chemical munitions—has forced the Alliance to threaten nuclear retaliation for a Pact chemical attack. On the other hand, the dearth of hard, directly pertinent evidence of Soviet forward chemical posture or training could signify a lack of interest on the part of the Soviets in pursuing offensive chemical operations against modern military forces in Western Europe.

This Estimate considers Soviet and Pact use of lethal chemical agents against NATO. We have no evidence concerning Soviet intentions regarding the use of incapacitants and other nonlethal agents, and have not addressed the conceivable uses of such agents during a European war. Nonlethal agents are discussed in the section on future Soviet chemical weapon developments only to indicate the full scope of Soviet interests.

KEY JUDGMENTS

The Soviet Union maintains the world's largest and most comprehensive chemical warfare capability. We believe there is sufficient risk of Soviet use of chemical weapons that NATO must take them into account.

We are agreed that:

- The Soviets have a large chemical stockpile, *at least* several times as large as that of the United States.
- The Soviets currently are producing chemical warfare agents at least at a level sufficient to replenish stocks, train production personnel, and provide test agents. We believe they are capable of producing more than enough chemical warfare agents to fulfill their wartime requirements.
- The Soviets give high priority to research on and development of new or improved agents and have developed chemical warheads and munitions for virtually all types of Warsaw Pact short-range ballistic missiles, ground attack aircraft, and artillery that enable them to engage targets throughout the full operational depth of the battlefield.
- They have approximately 45,000 personnel assigned to chemical troops in the Ground Forces alone, and there is evidence of Chemical Service personnel, equipment, and units in the Soviet Air and Air Defense Forces, the Strategic Rocket Forces, and the Navy.
- Training of Soviet officers in the employment of chemical weapons continues in specialized schools. The Chemical Service continues to receive instruction in chemical warfare subjects.
- The Soviets believe chemical weapons to have military utility, as demonstrated by their use of such weapons both in Afghanistan and in Southeast Asia—although their use in those areas is related to the nature of the enemy as well as the low risk of either retaliation in kind or significant escalation.
- Finally, the Soviet Union is engaged in research and development programs that could yield improvements in traditional chemical weapons. Biotechnology-based novel agents could be available for test and evaluation within five years [

]

We are also agreed, however, that:

- Since the mid-1970s, Warsaw Pact writings and plans concerning the use of offensive chemical weapons have decreased. In contrast to the earlier period when detailed allocations of chemical weapons to Pact combat units were featured in Pact writings, we have received very few indications of such allocations in the past decade despite our access to the same kinds of sources.
 - We have noted a decline in chemical-warfare-related subjects in the curriculums of the Voroshilov General Staff Academy, from which graduation is required of all officers before they can occupy any command position at or above regiment level, or any primary staff position at or above division level. Professional writings originating in Soviet military academies have continued to address the application of nuclear, conventional, and, increasingly, improved conventional munitions, but we have not seen references to offensive chemical munitions employment since the mid-1970s.
- [

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- In sum, we find little evidence during the last decade of Soviet planning and training for the use of chemical weapons against NATO.
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Despite these uncertainties and inconsistencies, we do agree that major changes have taken place in the Soviet approach to chemical

warfare. Indeed, the views expressed in this Estimate represent a significant departure from NIE 11-14-81, *Warsaw Pact Forces Opposite NATO*, the last Intelligence Community estimate concerning Soviet intentions to wage chemical warfare in a war against NATO.

In this regard, we agree on the following points:

- The Intelligence Community previously held the view that if the Pact were to employ chemical weapons against NATO it would do so on a "massive" scale. This term was not defined, but left the impression that if the Pact were to employ chemical weapons it would use a great number of chemical munitions across the full depth and breadth of the European theater. We now believe that the Pact would not use chemical weapons in that fashion. We have chosen the term "selective" to represent a lower scale of use.¹
- The use of chemical weapons is not a standard, integral feature of the nonnuclear phase of war. We believe the initial release of chemical weapons would require a decision at the highest Soviet political and military levels. The Soviets might authorize the selective use of these weapons against key targets as a part of a strategy to undermine NATO's escalatory capability during the transitional period from conventional to nuclear warfare.
- We also believe that the likelihood of the Soviets' initiation of chemical warfare would be low as long as their conventional operations against NATO proceeded satisfactorily. However, the use of chemical weapons would become more likely if NATO initiated chemical warfare or if hostilities entered a transitional period from conventional to nuclear war.
- All but Army agree that, if the Soviets decided to employ chemical weapons, such use would most likely occur simultaneously with or subsequent to nuclear operations. While the Soviets would seek to defeat NATO by using only conventional means, they would not discount the likelihood of escalation and probably would attempt to preempt a NATO nuclear or chemical attack.

¹ Army believes that the terms "massive" and "selective" need additional clarification. The Soviets now have sufficient nuclear weapons to execute their nuclear battlefield doctrine without using chemical weapons as gap fillers. Although this does affect the quantity of chemical weapons allocated during the transitional and nuclear phases of warfare, it does not affect that aspect of Soviet chemical doctrine that still provides for the delivery of chemical munitions by tube artillery, multiple rocket launchers, and aircraft. This apparent decrease in quantity from "massive" to "selective" reflects an increase in nuclear capability. Chemical warfare can be separated from nuclear warfare and must be considered in that perspective. Chemical weapons are available for use during both the nonnuclear and nuclear phases.

The core of our disagreement, then, is over the issue of the Soviets' *intent* to use chemical weapons selectively in the nonnuclear phase of a war with NATO, even though such use is not a standard, integral feature of their doctrine. Indeed, we have a few [] to small-scale use of offensive chemical weapons being practiced by elements of front-, army-, and division-level units. There is also limited evidence indicating that some Soviet units continue to train for chemical fire missions at the unit level. Even so, this evidence is fragmentary and probably inconclusive. Thus, given the paucity of direct evidence, agency views are based on inferences from capabilities, past experience, and differing interpretations of these and other factors:

- DIA and the Services believe that, because the Soviets have a significant capability to conduct chemical warfare and have demonstrated the will to engage in it, they would be likely to use chemical weapons selectively in the nonnuclear phase under some circumstances. These include Warsaw Pact reversals and possibly when the Soviets perceived NATO forces to be in a poor protective posture or to have inadequate retaliatory capability—even at the outset of hostilities.
- Army believes that chemical weapons are no longer a necessary component of Soviet nuclear fire planning, but are still a fire planning option available to the commander. The Soviets now have sufficient nuclear weapons to execute their nuclear battlefield doctrine without using chemical weapons as “gap fillers.” However, this does not affect that aspect of Soviet chemical doctrine that still provides for the delivery of chemical munitions by tube artillery, short-range ballistic missiles, multiple rocket launchers, and aircraft. Chemical warfare can be separated from nuclear warfare and must be considered in that perspective. Army believes that the Soviets' concern about NATO's nuclear retaliatory capability would have been calculated in the prewar Soviet estimate of the correlation of military forces. Thus, a decision by the Soviets to go to war would imply confidence in their ability to deal with this NATO retaliation capability. Were chemical weapons to appear to make a critical difference in the likely combat outcomes, it would be highly surprising to see the Soviet commanders deny themselves this critical advantage.
- INR believes that under certain circumstances in the nonnuclear phase the Soviets might decide to use their substantial advantage in chemical warfare. INR bases its judgment on the unpredictability of developments in any European war. In the

absence of convincing evidence on current doctrine and planning, INR cannot subscribe to more specific judgments regarding the likelihood of chemical warfare use.

- CIA believes that, while selective use cannot be ruled out, it is unlikely that the Soviets would use chemicals before deciding to initiate nuclear warfare. Soviet chemical weapons requirements for a NATO war have been reduced by improved conventional capabilities, small nuclear weapons, and a conventional war-fighting strategy. Selective use of chemicals would force Moscow to balance the increasingly limited advantage of such an attack against the danger of a NATO nuclear response.

DISCUSSION

Current Soviet Offensive Chemical Warfare Capabilities

1. The Soviet Union maintains the world's largest and most comprehensive chemical warfare capability. This includes a chemical production base and stockpile that are adequate to meet the Soviets' combat requirements, delivery systems that can range the depth of the battlefield, and integrated protective systems for their armed forces.

The Soviet Chemical Agent Production Base and Stockpile

2. We have limited evidence on which to base our estimates of Soviet chemical agent production capacity. We monitor 13 plants in the Soviet Union that are capable of producing toxic agents. Of these, three are particularly configured to produce chemical warfare agents; one of the three is active for two to four months a year. We assess that current Soviet production is sufficient to replenish stocks, train production personnel, and provide test agents. We believe that the Soviets, even without activating all their plants, are capable of producing more than enough chemical warfare agents to fulfill their wartime requirements.

3. To date, we have identified [] national-level chemical warfare depots []

[] that store chemical warfare agents and nuclear, biological, and chemical equipment and materials. Intelligence Community estimates on the size of the Soviet bulk agent stockpile range from a low of less than 70,000 metric tons (CIA) to a high of at least 300,000 metric tons (DIA and Army).² []

[] Sufficient toxic chemical railcars and trucks are held in reserve in and around these depots to permit the rapid transfer of bulk agent to forward locations. There is little intelligence available on the storage of chemical munitions. Some filled chemical weapons may be stored at depots in the Soviet Union and the forward area.

² INR does not believe there is sufficient evidence on which to base an estimate of the Soviet bulk agent stockpile; it could be significantly higher or lower than the limits presented here.

Chemical Munitions and Delivery Systems

4. The Soviets continue to produce and stockpile a variety of chemical agents and munitions, give high priority to research on and development of new or improved agents, and have developed chemical warheads or munitions for virtually all types of Warsaw Pact short-range ballistic missiles, ground-attack aircraft, and artillery. The Soviets can engage targets throughout the full operational depth of the battlefield. Moreover, the improvements in the accuracy and reliability of current and future Soviet weapon systems further improve their capability to deliver all types of munitions including chemicals.

Nuclear, Biological, and Chemical Protective Capabilities

5. The Soviets have a capability to sustain operations on a contaminated battlefield. The Soviet Chemical Service is a special service of the armed forces dedicated to protecting military operations from the effects of nuclear, biological, and chemical weapons. Chemical Service units are organic to Soviet and Warsaw Pact ground forces from front through regimental level. We assess the peacetime manning of the chemical troops in the Ground Forces alone to be approximately 45,000 personnel. Reserve strengths may double that figure in wartime. There is evidence of Chemical Service personnel, equipment, and units in the Soviet Air and Air Defense Forces, the Strategic Rocket Forces, and the Navy.

6. Soviet Chemical Service personnel are equipped with nuclear, biological, and chemical detection, identification, and decontamination equipment. The principal wartime tasks of the Chemical Service are:

- Locating nuclear bursts.
- Conducting nuclear, biological, and chemical reconnaissance.
- Monitoring radioactive and chemical contamination.
- Assessing the radiation and chemical situation following use of weapons of mass destruction.

- Determining effects and carrying out safety measures when chemical and nuclear weapons are used.
 - Providing protective and decontamination equipment to friendly forces.
 - Decontaminating troops, equipment, buildings, and terrain.
 - Employing smoke generators, and flame and incendiary devices.
 - Providing technical escort of chemical weapons from storage depots to firing units.
 - Rendering enemy equipment unusable until decontaminated.
 - Causing large numbers of casualties when used against unprepared troops.
 - Wearing down enemy troops both physically and psychologically.
 - Requiring fewer munitions to achieve equal lethality.
10. On the other hand, the Soviets appear to have a healthy respect for the side effects and limitations of chemical weapons. They recognize that:

7. In addition to the capabilities of the Chemical Service, personnel of the combat arms are trained in nuclear, biological, and chemical defense measures and are equipped with full protective clothing and masks. Many combat and combat support vehicles possess collective protection systems and alarms. Taken together, these systems enhance Pact capabilities to operate on a contaminated battlefield.

Soviet Intent To Use Chemical Weapons Against NATO

Factors Bearing on Soviet Chemical Weapons Doctrine

8. The two most important factors affecting a Soviet decision to release chemical weapons for use against NATO are the anticipated military utility and the potential for a NATO retaliation. The Soviets would also consider the vulnerability of friendly and enemy forces.

9. *The Military Utility of Chemical Weapons.* Chemical weapons have a distinct utility in Soviet military operations. Chemical weapons are wide-area-effect weapons specifically designed to reduce the combat effectiveness of the enemy by killing or incapacitating personnel and contaminating equipment and terrain. Among the battlefield advantages the Soviets believe chemical munitions provide over conventional munitions in some circumstances are:

- Denying areas to potential adversaries through chemical contamination.
- Causing target neutralization without physical destruction.
- Enlarging the lethal area.
- Effectively attacking sheltered targets.
- Slowing down enemy advances and restricting enemy maneuverability.

- Terrain and weather may reduce the effectiveness of toxic agents, and break up or prevent the formation of the secondary toxic cloud.
- Consideration must be given to the minimum distance from friendly troops that agents may be used.
- Countermeasures can be taken on short notice and, if properly implemented, could significantly degrade chemical weapons effectiveness.
- Operations in a protective posture are restrictive.
- Chemical contamination of the battlefield could slow the pace of operations for both sides, which the Soviets believe in some cases could assist a defender.
- Chemical weapons employment increases the complexity of planning and executing offensive operations.

11. *NATO Retaliatory Capability.* Retaliation has been a prime determinant in considerations of the use of chemical warfare since World War I. Concern for chemical escalation was the principal deterrent to the use of chemical weapons by all sides during World War II. Since that time, another form of escalation that must be considered is nuclear weapons.

12. The Soviets certainly are aware of statements by authoritative US and NATO spokesmen that NATO might be forced to respond to a Soviet chemical attack with theater nuclear weapons because NATO has a limited chemical weapons capability. Sensitive Pact writings also predict that NATO would resort to the use of nuclear weapons to forestall defeat on a conventional battlefield whether or not chemical weapons were used, and the Pact is well aware of NATO exercises that portray such a chain of events.

13. We are aware of an essentially accurate Pact assessment of the US chemical stockpile conducted

during the 1970s that stresses the age and obsolescence of US munitions. Nevertheless, Soviet and Pact writers continue to reflect their concern about NATO's chemical capabilities and their profound respect for US chemical technology. The Soviets credit the United States and NATO with an extensive offensive chemical capability, and suspect that the US binary weapons program is designed to evade the limitations that might be posed by future chemical weapons treaties.

14. The Soviets are aware that an effective use of chemical weapons by NATO could inflict significant casualties, depending on the warning time and type of agent used. The Soviets recognize that a debilitating casualty rate would undercut their preferred strategy of a fast-moving offensive against NATO and, as a result, they appear to have adopted a strategy of deterring enemy chemical use by maintaining a substantial offensive and protective capability.

A Weapon of Mass Destruction

The Soviets have classified chemical and nuclear munitions as weapons of mass destruction—along with others like biological weapons, incendiary weapons, and fuel-air explosives—although they regard only nuclear weapons as capable of being decisive in war. The Pact continues to define these as "weapons of mass destruction," although they would use some of them—such as fuel-air explosives and napalm, which do not require release at the highest political level—during the conventional phase of a European conflict.

First Use/Preemption

15. The Soviets deny that they would be the first to use chemical or nuclear weapons. Authoritative East European sources, however, report that the Soviet policy is to preempt if necessary. Pact sources indicate that their forces would begin preparations to preempt immediately upon detecting NATO preparations to employ weapons of mass destruction. At least in the nuclear arena, classified writings of recent years strongly suggest that the Soviets are deeply concerned that they would not have time to preempt.

Nuclear Warfare

16. The majority of available evidence that refers to chemical warfare portrays Pact chemical strikes simultaneous with or subsequent to nuclear operations. We believe that, if the Soviets elected to use chemical

weapons against NATO, they would be most likely to employ them to complement nuclear munitions or to neutralize certain sensitive targets immediately before a nuclear strike. We believe there is sufficient risk of such actions that NATO must take them into account. (See Army comment in paragraph 19.)

Nonnuclear Warfare

17. Soviet military doctrine since the late 1960s appears to be that an initial period of combat with NATO, in which the USSR would seek to degrade NATO's nuclear capability, might be limited to the use of conventional weapons. This initial period is referred to by the Soviets as the "nonnuclear phase of war."

18. The use of chemical weapons is not a standard, integral feature of the nonnuclear phase. Soviet intentions for such use are unclear and the evidence ambiguous. Nevertheless, the comprehensive chemical warfare capabilities of the Soviets require that the prudent planner consider the possibility of chemical weapons use from the outset of hostilities. We believe the initial release of chemical weapons would require a decision at the highest Soviet political and military levels. We also believe that the likelihood of Soviet initiation of chemical warfare against NATO would be low, as long as conventional operations proceeded satisfactorily. However, the use of chemical weapons would become more likely under certain conditions—such as if NATO initiated chemical warfare or if NATO were perceived to be preparing to use chemical weapons. In addition, the Soviets might authorize the use of chemical weapons against key targets as part of a strategy to undermine NATO's escalatory capability during the transitional period from conventional to nuclear warfare. Use under other circumstances is more difficult to determine.

19. There are differences of opinion as to which other circumstances might result in a Warsaw Pact chemical attack:

- CIA believes it unlikely that the Soviets would use chemical weapons until a decision had been made to initiate nuclear warfare. While we cannot rule out the small-scale use of chemical weapons against selected targets, we believe such use would be counter to Soviet doctrine. The Soviets would necessarily be forced to weigh the expected limited gains to be achieved by such attacks against the standing NATO threat to respond and escalate. CIA does not credit the Soviets with the capability to engage in more than limited and selective use of chemical weapons. Such limited use would be inconsistent with

the acknowledged Soviet intention to conduct the war conventionally. The Soviets continue to emphasize the decisive nature of nuclear weapons, and the critical importance of retaining the initiative for their use. A limited and selective use of chemical weapons would be inconsistent with the Soviets' evident doctrinal intention to maintain their self-assessed advantage by waging war conventionally.

- DIA and the Services believe that the Soviet Supreme High Command retains the flexibility to authorize the employment of chemical weapons to supplement the conduct of the nonnuclear phase. According to this view, the Soviets judge NATO unlikely to escalate automatically to the use of tactical nuclear weapons in response to the selective use of chemical weapons. Therefore, under certain conditions in the nonnuclear phase, the Soviets would probably selectively employ chemical weapons.

These conditions include:

- A perception by the Soviets that their enemy was in a weak protective posture, incapable of conducting effective decontamination, unable to operate effectively in a contaminated environment, or incapable of retaliating effectively—even at the outset of hostilities.
- A Warsaw Pact reversal or loss of momentum, especially if Pact commanders perceived that using chemical weapons would measurably enhance their prospects for success.
- Army believes that chemical weapons are no longer a necessary component of Soviet nuclear fire planning, but are still a fire planning option available to the commander. The Soviets now have sufficient nuclear weapons to execute their nuclear battlefield doctrine without using chemical weapons as "gap fillers." However, this does not affect that aspect of Soviet chemical doctrine that still provides for the delivery of chemical munitions by tube artillery, short-range ballistic missiles, multiple rocket launchers, and aircraft. Chemical warfare can be separated from nuclear warfare and must be considered in that perspective. There is no objective reason ruling out use during either the nuclear or the nonnuclear phase. Once release authority has been given, Soviet commanders could decide to employ chemical weapons against targets for which they are best suited to accomplish the commander's objectives. Army believes that the Soviets' concern about NATO's nuclear retaliatory capability

would have been calculated in the prewar Soviet estimate of the correlation of military forces. Thus, a decision by the Soviets to go to war would imply confidence in their ability to deal with this NATO retaliation capability. Moreover, decisions to use chemical weapons at the tactical and operational levels would be based on continuing calculations of the correlation of forces. Such calculations would involve both nuclear and nonnuclear assessments. Were chemical weapons to appear to make a critical difference in the likely combat outcomes, it would be highly surprising to see Soviet commanders deny themselves this critical advantage.

- INR believes that under certain circumstances in the nonnuclear phase the Soviets might decide to use their substantial advantage in chemical warfare. INR bases its judgment on the unpredictability of developments in any European war. In the absence of convincing evidence on current doctrine and planning, INR cannot subscribe to more specific judgments regarding the likelihood of chemical warfare use.

20. The Soviets might perceive the selective use of chemical warfare to be advantageous against the peripheries of NATO and against amphibious forces. We believe they might use chemical weapons in northern Norway or eastern Turkey to take advantage of local situations. Use of chemical weapons in such peripheral areas would be difficult to confirm rapidly and, in Soviet eyes, might carry less risk of retaliation than use in Central Europe.³ The Soviets might consider the use of chemical weapons against amphibious forces. Troops engaged in heliborne and surface assaults would also be good targets for chemical weapons where personnel casualties are the goal.⁴

The Evolution of the Soviet Offensive Chemical Warfare Threat to NATO

The Nature of the Evidence

21. In addition to the assessed capabilities of the Soviets to conduct chemical warfare, we have relative-

³ CIA believes that there is no evidence that the Soviets would consider chemical attacks against flanking NATO countries to have less risk than that associated with similar attacks in Central Europe. Further, the CIA holds that the limited tactical gains that could be achieved by chemical weapons in secondary theaters would in no way compensate for the strategic risk involved. Finally, the CIA believes that physically distant areas such as northern Norway do not represent strategically peripheral problems for either the United States or the Soviet Union.

⁴ INR believes that considerations beyond the Central European battlefield have not been properly examined to the extent they can be included in this Estimate.

ly few references to chemical warfare in the substantial body of evidence describing Soviet military doctrine. We have an extensive collection of Soviet and Warsaw Pact doctrinal writings within which the percentage addressing chemical warfare doctrine—never large—has steadily decreased. [

and above the division level and by tactical and strategic aviation. In addition to advocating the use of chemical weapons because of their own unique utility, the authors considered them a supplement to nuclear weapons. Soviet writings suggested that chemical weapons could be used to compensate for a shortage of tactical nuclear weapons. The planned allocations of large numbers of chemical warheads in some writings may have been the result of this approach.

22. [

26. Soviet and Warsaw Pact professional military education during this period also stressed chemical weapons employment. The curriculums of the Voroshilov General Staff Academy—from which graduation is required of all officers before they can occupy any command position at or above regiment level, or any primary staff position at or above division level—included blocks of instruction on offensive chemical warfare and protective measures. Soviet and Pact combined-arms officers destined for command or staff assignments with field forces were taught how to plan for and direct the employment of all types of munitions. Chemical fire planning was taught at specialized schools.

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23. Despite these uncertainties and inconsistencies, we do agree that major changes have taken place in the Soviet approach to chemical warfare. These changes have led us to conclude that recent Estimates were incorrect when they implied that if the Pact were to employ chemical weapons it would use a great number of chemical munitions across the full depth and breadth of the European theater. We now believe that the Pact would not use chemical weapons in this fashion. We base our new belief on the following evidence.

Before the Mid-1970s

24. From its inception, the Warsaw Pact's strategy has been based on reacting to—or preempting—a NATO attack against one or more Pact nations. Because the Pact has enjoyed a considerable advantage in conventional forces over its NATO counterparts, Pact planners have assumed that NATO would initiate the use of nuclear weapons and have tailored their plans to incorporate a massive response using nuclear and chemical weapons.

25. Warsaw Pact operational art as reflected in sensitive documents and writings of the period before the mid-1970s envisioned large-scale offensive/retaliatory chemical weapons employment. Pact authors addressed the use of chemical weapons by troops at

27. In addition to writings and classroom instruction, there was limited but clear evidence of practical training for the offensive use of chemical weapons at all levels. [

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After the Mid-1970s

28. Warsaw Pact war-fighting strategy has undergone a gradual transformation. As tactical nuclear weapons entered the Pact inventory in sufficient numbers to counter the NATO nuclear threat, Pact authors and planners acknowledged the possibility that a European conflict might begin with a brief conventional phase of warfare leading to a nuclear exchange. By the late 1970s, Soviet planners had embraced the concept of attempting to defeat NATO using only conventional means. To this end, they have upgraded their conventional war-fighting capabilities while

simultaneously fielding an improved nuclear strike force to balance NATO's nuclear deterrent.

29. Since the mid-1970s, Warsaw Pact writings and plans concerning the use of offensive chemical weapons have decreased. In contrast to the earlier period when detailed allocations of chemical weapons to Pact combat units were featured in Pact writings, we have received very few indications of such allocations in the past decade despite our access to the same kinds of sources.

30. We have noted a decline in chemical-warfare-related subjects in the curriculums of the Voroshilov General Staff Academy. Professional writings originating in Soviet military academies have continued to address the application of nuclear, conventional, and, increasingly, improved conventional munitions, but we have not seen references to offensive chemical munitions employment since the mid-1970s. Apparently, the most promising Soviet and Pact middle-grade and senior officers no longer receive training in the integration of chemical warfare into combined-arms operations. Some Soviet officers continue to receive training in the employment of chemical weapons in specialized schools, and the Chemical Service continues to receive instruction in chemical warfare subjects, in addition to a greatly expanded coverage of nuclear warfare subjects.

31. [

[small-scale use of offensive chemical weapons was practiced by elements of front-, army-, and division-level units. Limited evidence indicates that some Soviet units continue to train for chemical fire missions at the unit level. We believe this level of training is probably not sufficient to maintain the degree of familiarity with chemical warfare necessary to enable front and army staffs to conduct large-scale chemical attacks, although it probably is sufficient to allow selective employment of chemical weapons (DIA, Army, and INR believe that it is sufficient to conduct selective attacks).

32. We have noted some change of emphasis by the Soviets in the scale of employment of chemical weapons. There is a trend toward an increasing percentage of improved conventional munitions in the warhead mix for short-range ballistic missiles. [

[This situation is in marked contrast to the situation in the 1960s when chemical munitions had second priority and, in some cases, were the predominant munition.]

Afghanistan and Southeast Asia

33. The Soviet Union provided Lao and Vietnamese forces with lethal chemicals and toxin agents that have been used on H'Mong and Lao resistance forces and villages since 1976. Storage facilities have been identified in Laos and Soviet advisers supervise the Lao chemical warfare program. Similarly, lethal chemical and toxin agents have been used by Vietnamese forces in Kampuchea since 1978. The USSR also provided chemical weapons to Afghan Government forces, which used them for six months before the Soviet invasion. Soviet forces employed chemical and toxin weapons throughout the country against Mujahedin guerrillas and villages until late 1982. Since then, there have been a few reported attacks, most notably during the 1984 spring offensive into the Panjsher valley, but these reports have not been confirmed.

34. Lethal chemical weapons used in Southeast Asia and Afghanistan have included sprays, bombs, rockets, mines, and artillery shells. In addition to toxins and incapacitants, such traditional agents as phosgene, diposgene, nerve agents, mustard, lewisite, and toxic smoke may also have been used.

35. The Soviets' use of chemical and toxin weapons in Afghanistan and their willingness to supply allies the means to wage chemical warfare indicate that the Soviets will not be constrained in a European war by humanitarian or legal responsibilities. It must be assumed that the decision to use and supply chemical and toxin weapons, in violation of two international treaties, was made at the highest levels in Moscow.

36. We assess that the use of chemical weapons by Soviet air and ground forces in Afghanistan and the supplying of chemical weapons for use by allies in Southeast Asia indicate that the Soviets perceive chemical weapons have a continued military utility in combat, that they have the will to employ chemical weapons in specialized circumstances, that they have some troops trained in the employment of chemical weapons, and that they maintain an inventory of readily available chemical munitions.

37. CIA further believes that the use of chemical weapons by the Soviets and their surrogates in Afghanistan and Southeast Asia is driven primarily by the issue of retaliatory capability. In no case are the victims of these attacks capable of retaliating in kind or escalating the conflict in response to the chemical attacks. Furthermore, the Soviets recognize that chemical weapons have their greatest effect upon unprepared opponents lacking physical protection, warning, or adequate training. These criteria provide a good description of the Third World targets of Soviet chemical warfare, yet even there the attacks have been episodic and decidedly limited in both number and effect. This activity parallels Soviet doctrinal writing which, while not ignoring chemical warfare, nevertheless views it as a complicating factor with theoretically high but operationally low military utility.

38. DIA and the Services believe the Soviets may calculate that the abhorrence of chemical warfare is slowly being eroded as the development and use of chemical weapons by an increasing number of countries becomes an accepted norm. This may lead the Soviets to calculate that their use of chemical warfare in future European wars would not automatically generate a NATO decision to retaliate with chemical or nuclear weapons, especially if the Soviet use was selective.

The Future Soviet Chemical Weapons Program

39. In the early 1970s the Soviets embarked on a multifaceted research and development program designed to overcome a perceived significant US lead in chemical warfare. A special panel was set up to guide future Soviet chemical warfare efforts and improve the Soviet position. In general, this program was to concentrate on emerging areas of science in search of significant breakthroughs that could result in a new generation of chemical weapons to be fielded in the 1985-95 time frame. Specifically, the program was to improve the storage, effectiveness, deliverability, and safe handling of traditional and emerging chemical warfare agents. In addition, it would develop new lethal or incapacitating agents with reduced detectability and the capability to penetrate chemical protective equipment. By contrast, research on classic nerve agents has decreased steadily since the mid-1960s, although this effort continues. Soviet research on mycotoxins, which spans over 40 years, also continues.

40. In the 1970s, the Soviets began applying advances in biotechnology, such as genetic engineering, to the development of new agents. These techniques

Biological and Chemical Warfare

Historically, the difference between biological and chemical weapons was determined by definition. Biological agents were defined as living disease organisms that exist in nature. Toxins are chemical substances produced from biologic materials or synthesized. Living agents can be selectively bred to increase their toxicity or change other properties. Classic chemical agents were limited to nonliving toxic substances produced through industrial processes. The novel agents now being developed share characteristics of both groups. They include organisms that have been genetically engineered to modify virulence, as well as chemical substances. The chemical substances include toxins (naturally occurring toxic biochemicals)—like snake venom—and substances in the human body that ordinarily perform regulatory functions—such as causing sleep, pain, or anxiety—but which in excess can be damaging. These chemicals could be produced by chemical synthesis or biological processes, or both. Biologic synthesis would permit long-term storage of small amounts of many and varied organisms, which can be used to initiate agent production in a variety of commercial, large-scale fermentation plants otherwise used for non-military products.

could be used to produce toxic materials and toxins that previously could not be obtained in larger amounts and to create entirely new agents. We believe that some of these biotechnology-based novel agents are within five years of transition from pure research to the testing and evaluation stages of the development cycle. We do not know if the Soviets are developing new weapon systems to disseminate the new agents. We believe that most of the new agents could be delivered by existing systems, with perhaps minor modifications.

41. The novel agent program will most likely parallel the general progress of advanced biotechnologies, with new methodologies put to use as they become available. The novel agent program increases significantly the number and variety of agents that could be developed, while making large-scale production of different agents more feasible. These agents can be developed, produced, and used in conditions under which hostile intent would be virtually impossible to establish. J^s

^s For a more detailed account of this program, see SNIE 11/17-84/CX: *New Directions in Soviet BCW Agent Development and Their Implications*, 24 January 1984

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