

~~TOP SECRET~~  
~~CONTROLLED DISSEM~~

~~TS 190492~~  
NIE 11-8-69  
9 September 1969

NATIONAL INTELLIGENCE ESTIMATE  
NUMBER 11-8-69

# Soviet Strategic Attack Forces

[ ]

~~LIMITED DISTRIBUTION~~  
~~WARNING~~  
The sensitivity of this document requires that it be handled with maximum security precautions on a need-to-know basis. Recipients will insure that only personnel having all proper clearances and a need-to-know will have access to this document.

Submitted by

*Richard Helms*

DIRECTOR OF CENTRAL INTELLIGENCE

Concurred in by the

UNITED STATES INTELLIGENCE BOARD

As indicated overleaf

9 September 1969

**CIA HISTORICAL REVIEW PROGRAM  
RELEASE AS SANITIZED**

Authenticated:

*James A. Layton Jr.*  
EXECUTIVE SECRETARY USIB

Pages 45

Nº 195

~~TOP SECRET~~  
~~CONTROLLED DISSEM~~

~~TOP SECRET~~

**The following intelligence organizations participated in the preparation of this estimate:**

The Central Intelligence Agency and the intelligence organizations of the Departments of State and Defense, the AEC, and the NSA.

**Concurring:**

Lt. Gen. R. E. Cushman, Jr., USMC, the Deputy Director of Central Intelligence

Mr. George C. Denney, Jr., the Acting Director of Intelligence and Research, Department of State

Lt. Gen. Donald V. Bennett, the Director, Defense Intelligence Agency

Vice Adm. Noel Gayler, the Director, National Security Agency

Mr. Howard C. Brown, Jr., the Assistant General Manager, Atomic Energy Commission

**Abstaining:**

Mr. William C. Sullivan, the Assistant Director, Federal Bureau of Investigation, the subject being outside of his jurisdiction.

~~WARNING~~

~~This material contains information affecting the National Defense of the United States within the meaning of the espionage laws, Title 18, USC, Secs. 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited.~~

GROUP 1  
Excluded from automatic  
downgrading and  
declassification

~~TOP SECRET~~

~~TOP SECRET~~

**APPROVED FOR RELEASE  
CIA HISTORICAL-REVIEW PROGRAM**

THE DIRECTOR OF CENTRAL INTELLIGENCE

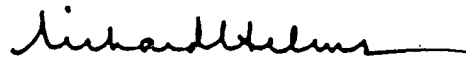
WASHINGTON, D. C. 20505

9 September 1969

MEMORANDUM FOR: Recipients of NIE 11-8-69

SUBJECT : Extreme Sensitivity of NIE 11-8-69,  
"Soviet Strategic Attack Forces"

1. Dissemination of NIE 11-8-69 must be carefully limited because of the extreme sensitivity of the information therein.
2. In this connection, I wish to stress that there be absolutely no reproduction of this Estimate, and that no revelation of its existence be made to unauthorized persons.



Richard Helms  
Director

~~TOP SECRET~~

## CONTENTS

	<i>Page</i>
THE PROBLEM .....	1
FOREWORD .....	1
CONCLUSIONS .....	2
DISCUSSION .....	6
I. SOVIET STRATEGIC POLICY .....	6
Future Goals .....	7
II. SOVIET FORCES FOR INTERCONTINENTAL ATTACK .....	9
A. General .....	9
B. ICBM .....	9
Current Status .....	9
New Developments .....	12
Future Force Levels and Composition .....	17
C. Space Weapons .....	18
D. Nuclear-Powered Ballistic Missile Submarine Force .....	20
Present Status .....	20
Weapons System Development .....	22
Future Force Levels and Composition .....	22
E. Heavy Bomber Forces .....	23
Present Status .....	23
Aircraft Development .....	23
Future Force Levels and Composition .....	24
III. FORCES FOR PERIPHERAL OPERATIONS .....	24
A. General .....	24
B. Land-Based Strategic Missiles .....	25
Recent Developments .....	26
Future MRBM/IRBM Developments .....	26
Future Force Levels and Composition .....	27
C. Diesel-Powered Ballistic Missile Submarines .....	29
D. Medium Bomber/Tanker Forces .....	30
Present Status .....	30
Aircraft and Missiles in Development .....	31
Future Force Levels and Composition .....	31

~~TOP SECRET~~

ANNEX

GLOSSARY OF MISSILE TERMS

TABLE I: ICBM Systems

TABLE II: Strategic Missile Systems for Peripheral Operations

TABLE III: Submarine-Launched Ballistic Missile Systems

TABLE IV: Bomber and Tanker Aircraft

TABLE V: Air-to-Surface Missile Systems

APPENDIX I: Views of Major General Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, on hardness of Soviet ICBM silos.

~~TS 190492~~

~~TOP SECRET~~

## SOVIET STRATEGIC ATTACK FORCES

### THE PROBLEM

To estimate the strength and capabilities of Soviet strategic attack forces through mid-1971 and to estimate general trends in those forces over the next 10 years.

### FOREWORD

Our estimates of Soviet military capabilities are organized on lines which the intelligence community and users of the estimates have for some years found useful. This organization is in terms of the mission to be performed rather than of administrative subordination. Thus, for example, the elements of the strategic attack forces are variously subordinated, the pertinent missiles to the Strategic Rocket Forces, the bombers to Long Range Aviation, and the missile submarines to the navy. This method of treating Soviet forces is basically the same as that being used by DOD in US military planning, although there are differences in detail. Moreover, within the category of strategic attack forces, which is the subject matter of this estimate, we have been accustomed to distinguish between forces for intercontinental and those for peripheral attack.

It should be recognized, however, that this organization is somewhat arbitrary. The line of distinction between the various categories is necessarily a fuzzy one, and is becoming more so. For example, cruise missile submarines (which we deal with as general purpose force weapons) can, if the occasion warrants, be used to attack strategic targets near enemy coasts. Strategic ballistic missiles can be employed in sup-

port of theater force operations. And fighter bombers or missiles of less than MRBM range are plainly suitable for attacking strategic targets in Eurasia.

Similarly, as shifts in the international situation occur or as a war progresses, the assignment of a weapon to a particular category can lose validity. The need of the hour dictates that any weapon system that can fruitfully be brought to bear on a specific target should be used. Thus, today's strategic weapon may be tomorrow's tactical one; witness the only combat use to which B-52s have thus far been put. Accordingly, though we continue to treat the various Soviet weapon systems within the categories already established, it must be recognized that any given system may have other uses as well.

## CONCLUSIONS

### *Soviet Strategic Policy*

A. For several years, the primary objectives of Soviet strategic policy have evidently been to build a more formidable deterrent and to overcome the US lead in capabilities for intercontinental attack. Today, while the Soviets remain inferior in numbers of intercontinental delivery vehicles, they have overtaken the US in numbers of operational ICBM launchers. Current programs will bring further improvements in the USSR's strategic position, already the most favorable of the postwar period. But the Soviets face in the future a strategic situation changed and complicated by projected improvements in US forces and by the threat of a hostile China with an emerging nuclear capability.

B. We can make only the most general conclusions as to the course of Soviet strategic policy over the 10 year period of this estimate. In the absence of an arms control agreement, Moscow will almost certainly continue to strengthen its strategic forces, giving first priority as in the recent past to the forces for intercontinental attack and for strategic defense. Although we have no direct evidence of Soviet force goals, we believe that the Soviets will seek as a minimum something

that they can regard as rough parity with the US; it is equally possible that they will seek some measure of superiority.<sup>1</sup>

*Forces for Intercontinental Attack*

C. The Soviets have built forces for intercontinental attack capable of inflicting heavy damage on the US even if the US were to strike first. Most of the ICBMs and all of the submarine-launched ballistic missiles are best suited for attacks on soft targets. The SS-9 is the only ICBM with the combination of payload and accuracy to attack hard targets effectively, but in its present numbers with single warheads it could attack no more than a small percent of the US ICBM force. The USSR's capability to attack hard targets, however, is likely to increase considerably over the next 10 years. The Soviets will probably introduce ICBMs of greater accuracy. They are now testing multiple re-entry vehicles on the SS-9 and though the purpose of these tests is unclear, we believe the Soviets will introduce MIRVs<sup>2</sup> capable of attacking hard targets. If the multiple re-entry vehicle tests are aimed at the development of a simple MRV, such a system could reach IOC late this year. If on the other hand they are aimed at the development of a MIRV system designed to attack Minuteman silos as described in paragraph 29 of the text, IOC could not be achieved before late 1970. A highly accurate MIRV system or one employing more than three RVs probably could not be developed before 1972, although its IOC might be delayed until as late as the mid-1970's.

D. *ICBMs.* In the recent past, the Soviets have sought to improve their strategic position by a rapid buildup in the numbers of ICBM launchers. In the strategic situation that is emerging, qualitative improvements—particularly those related to accuracy, survivability, damage limitation, and the ability to penetrate defenses—become more important. Moreover, the number of launchers will probably become

<sup>1</sup> For the views of Mr. George C. Denney, Jr., Acting Director of Intelligence and Research, Department of State; Vice Adm. Noel Gayler, the Director, National Security Agency; and Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, see their footnotes to paragraph 12.

<sup>2</sup> See the Glossary for definition of MRV and MIRV. In this estimate, the words "multiple re-entry vehicles" include both MRVs and MIRVs.



less significant in Soviet calculations than the numbers and kinds of re-entry vehicles. Considering current deployment activity and the probable phase out of older launchers, a Soviet ICBM force of some 1,300 launchers appears to be a minimum. Depending upon its composition and the extent to which it is supplemented by other weapons, such a force could in our view be consonant with a Soviet policy aimed either at rough parity or at some margin of advantage. Other factors, however, such as concern for survivability, a Soviet decision not to deploy MIRVs, a substantial delay in Soviet MIRV deployment, a try for superiority, or even the momentum of military programs could push these figures upward by some hundreds of launchers. We cannot now estimate the maximum size of the force which might result from such pressures.<sup>3</sup>

E. *Space Weapons.* There have been extensive flight tests which we think are related to development of a fractional orbit bombardment system (FOBS), a retrofired depressed trajectory ICBM, or perhaps a dual system to perform both missions. We have observed no testing since October 1968. We still think the chances are better than even that some version of the system will be deployed. Until our evidence is more conclusive, however, we cannot make a confident estimate as to the type of system being developed, when it could become operational, or how it might be deployed.

F. *Nuclear-Powered Ballistic Missile Submarines.* Production of the 16-tube Y-class ballistic missile submarine continues; some five or six are now in commission. In addition, the Soviets may be developing a 3,000 n.m. submarine-launched ballistic missile. We continue to believe that the Soviets are building a nuclear-powered ballistic missile submarine force which will be roughly comparable to the US Polaris fleet by the mid-1970's.

---

<sup>3</sup> For the views of Mr. George C. Denney, Jr., Acting Director of Intelligence and Research, Department of State; Rear Adm. Daniel E. Bergin, for the Acting Director, Defense Intelligence Agency; Brig. Gen. DeWitt C. Armstrong, III, for the Assistant Chief of Staff for Intelligence, Department of the Army; Rear Adm. Frederick J. Harlfinger, II, the Assistant Chief of Naval Operations (Intelligence), Department of the Navy; and Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, see their footnotes to paragraph 41.

G. *Heavy Bombers.* The Soviets still have about 200 heavy bombers and tankers in operation. We have no evidence that any are currently being produced for Long Range Aviation, and we consider it unlikely that a new heavy bomber will enter service. Hence, by 1979 the heavy bomber force will probably be largely deactivated.<sup>4</sup>

*Forces for Peripheral Operations*

H. Soviet strategic forces for peripheral operations consist primarily of MRBMs, IRBMs, medium bombers, and diesel-powered ballistic missile submarines. In addition, the Soviets are probably deploying some short-range ballistic missiles and some ICBMs against targets in Eurasia. These forces are arrayed for the most part against Europe, and in massive strength—an emphasis that will probably continue. The conflict with China, however, has posed new requirements for strategic forces. These can be met to some extent by retargeting existing systems (e.g., bombers and ICBMs), but there will probably be some additional deployment of strategic missiles against China.

I. Within the period of this estimate, the MRBMs and IRBMs now in service will probably be completely replaced. Our evidence of new missile development is scanty and inconclusive, but a 1,500 n.m. solid-propellant missile and a missile of longer range (up to 3,000 n.m.) seem the likeliest possibilities. We project an MRBM/IRBM force of some 400-700 launchers, supplemented by additional short-range missiles and ICBMs. The medium bomber force will probably decline from its present level of some 700-750 aircraft.<sup>5</sup> It seems highly unlikely that any new diesel-powered ballistic missile submarine will be built.

---

<sup>4</sup> For the views of Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, see his footnotes to paragraphs 61 and 62.

<sup>5</sup> For the views of Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, see his footnote to Section III D.

## DISCUSSION

### I. SOVIET STRATEGIC POLICY

1. The primary objectives of Soviet strategic policy evidently have been to build a more formidable deterrent and to narrow and eventually to overcome the US lead in capabilities for intercontinental attack. These goals were probably set in the wake of the Cuban missile crisis, when the US enjoyed such superiority as to put the USSR at a political and psychological disadvantage. At that time, Soviet leaders probably calculated that forces poised against Europe were adequate for any likely contingency and that the smoldering dispute with China posed no new requirements beyond a strengthening of the border guard. Thus, the forces for intercontinental attack and for strategic defense could be given first priority.

2. As a result, the Soviets have wrought a considerable change in the strategic situation. There can be no doubt today concerning the credibility of the Soviet deterrent. And while the Soviets remain inferior in total numbers of intercontinental delivery vehicles, they have overtaken the US in numbers of operational ICBM launchers. Thus, in only five or six years, the Soviets have emerged from a strategic situation which they evidently considered threatening to their security and damaging to their prestige.

3. The political situation has changed even more drastically over the past several years. Relations with China have deteriorated to the point that major hostilities could occur. It is clear that the Soviets now regard China as a major threat to the USSR, and they apparently see this threat as active, growing, and of long duration. The Soviet military buildup in the Sino-Soviet border area has primarily involved the theater forces, but there have been some related developments in the strategic forces. Substantial Soviet forces will almost certainly be stationed on the eastern frontier for the foreseeable future.

4. At the same time, the Soviets probably see no diminution of their military requirements in other areas. Indeed, in Europe, where Soviet troops still occupy Czechoslovakia, the requirement for theater forces has if anything grown. And although the danger of war with the US—in particular, of a US surprise attack—has in the Soviet view probably receded, the US remains the USSR's most formidable opponent. It constitutes the principal obstacle to the growth of Soviet influence in world affairs, and it alone has the military power to severely damage the USSR. In short, the Soviets only five years ago faced two major military problems: the strategic capabilities of the West and the security of Eastern Europe. Now there is a third, a hostile China with an emerging nuclear capability.

5. Under the present leadership, military expenditures have continued to rise, primarily as the result of the continuing development and deployment of stra-

tegic forces, which account for about half of the total military expenditures. This increase plus increased allocations for the consumer are squeezing Moscow's ability to invest in the future growth of the economy. Now, events in the Far East and in Europe have posed new military requirements. Thus the perennial problem of resource allocation has sharpened, and promises to sharpen further.

6. Though economic considerations almost certainly were among the principal reasons for the Soviet expression of willingness to discuss arms control with the US, strategic considerations must have been equally compelling. In view of US plans for improvements to its strategic forces, the Soviets probably recognize that a large sustained effort would be necessary to maintain the relative position they have now achieved. They may also reason that relatively modest increases in their strategic forces would not significantly enhance Soviet security while large increases would trigger a US response. Moscow's willingness to discuss strategic arms control probably reflects the view that it has attained or is in the process of attaining an acceptable strategic relationship with the US. Moreover, Moscow may believe that even if an agreement could not be reached, negotiations would have the effect of damping down the arms race, perhaps for a considerable time.

#### *Future Goals*

7. In the absence of an arms control agreement, the Soviets will almost certainly continue to strengthen their strategic forces. As in the past, we have no direct evidence concerning Soviet goals for their intercontinental attack forces in the future. Furthermore, we doubt that the Soviets themselves have set precise goals for the next 10 years. In the past, their strategic programs have moved in waves rather than in a steady progression, and force goals have obviously been modified as the situation changed. The present size and composition of these forces, deployment programs now underway, and R&D activities all provide useful indications for the near term. But a consideration of the factors that will shape these forces over the longer term—Soviet policy objectives, US actions, economic constraints, technological capabilities—leads only to the most general conclusions as to the future course of Soviet policy.

8. The development of US strategic capabilities will probably be the most important single factor affecting Soviet decisions on force goals. The Soviets, for example, are surely concerned that projected improvements in US forces—Poseidon, Minuteman III, and ABM—will erode their relative strategic position, and they must be considering how best to counter them. Their decisions will in turn affect developments on the US side. We cannot predict with any accuracy the end result of this interaction between US and Soviet strategic programs over the next 10 years.

9. The strategic forces built to date furnish some insight into Soviet strategic policy and objectives. The Soviet forces for intercontinental attack appear designed primarily for deterrence and, of course, for fighting a nuclear war if deterrence should fail. They have important damage-limiting capabilities, but most of the ICBMs and all of the submarine-launched ballistic missiles (SLBMs) are best suited for attacks on soft targets. The size of the forces for intercontinental attack, however, considerably exceeds that which the Soviets would probably think necessary to deter the US from deliberate attack.

10. Political and psychological factors must have weighed heavily in setting the force goals for current programs. An important objective of their strategic policy has been something that the Soviets could regard as rough parity with the US. We believe it will continue to be their minimum objective. This does not mean parity in each category of weapons; they are making no apparent effort, for example, to match the US in heavy bombers. We believe that in assessing the strategic balance the Soviets would go beyond numbers to consider qualitative differences in weapon systems and the interplay between offensive and defensive forces.

11. If forces on both sides could be maintained at something like present levels, such a policy might be attractive to the Soviets. It would be less costly than the strategic buildup of recent years, and could free resources for other pressing requirements. But, if the arms race should escalate sharply, maintenance of parity could prove very costly. Considering their other military problems, it is conceivable that in this situation the Soviets would settle for something less, i.e., a large assured destruction capability. For the foreseeable future, however, we believe that they would be prepared to continue the arms competition with the US.

12. We do not attempt to estimate how far the Soviets might carry a strategic buildup over the next 10 years. In evaluating future US strategic programs, they may conclude that a continuation of their efforts on the current scale will be essential merely to avoid retrogressing from their present relative position. But there are undoubtedly pressures in Moscow for a strategic policy aimed not merely at parity but at superiority over the US—it goes without saying that the marshals, and indeed the political leaders as well, would like to have a substantial edge. Should they aim at superiority, it seems reasonable to suppose that their programs might still be limited by a desire to stop short of forces that would provoke a US reaction. But they might either miscalculate or ignore the costs and risks involved in an indefinite continuation of competitive arms buildups. In any case, it seems likely that their programs will gradually cease to consist primarily of the deployment of additional launchers, and instead will emphasize developments such as MIRVs, and qualitative improve-

ments such as survivability, capacity to penetrate defenses, and damage-limiting capabilities.<sup>6 7</sup>

## II. SOVIET FORCES FOR INTERCONTINENTAL ATTACK

### A. General

13. The forces to be discussed in this section are ICBMs, nuclear-powered ballistic missile submarines, and heavy bombers. Development of these forces began in the 1950's. Deployment, however, was relatively limited until the mid-1960's when more effective and less expensive systems—new ICBMs and missile submarines—became available. Since that time, the buildup of these forces has proceeded rapidly.

### B. ICBMs

#### *Current Status*

14. The SS-9 and the SS-11 constitute the backbone of the Soviet ICBM force. Although the SS-11 is deployed in far larger numbers, the SS-9 can carry a much heavier payload, and is more accurate. Both systems are emplaced in hardened single-silo launchers, the SS-11 in groups of 10 and the SS-9 in groups of six. The older SS-7s and SS-8s are deployed in soft launch positions or in hardened triple-silo sites. All of the above systems use liquid-propellants. The newest Soviet ICBM, the solid-propellant SS-13, is deployed in only a small number of silos at one of the 25 Soviet ICBM complexes.

15. Our estimate of the numbers of operational launchers in the Soviet ICBM force over the next two years appears in the following table. The spreads shown in

<sup>6</sup> Mr. George C. Denney, Jr., Acting Director of Intelligence and Research, Department of State, considers that the general thrust of this paper permits a further statement on the future Soviet strategic buildup and that such a statement should be made. He believes that the Soviets would face great difficulties in any attempt to achieve strategic superiority of such an order as to significantly alter the strategic balance. In particular, he does not see how they would be able within the period of this estimate to achieve a capability to launch a surprise attack against the US with assurance that the USSR would not itself receive damage it would regard as unacceptable. For one thing, the cost of such an undertaking along with all their other military commitments would be enormous. More important, it would be extremely difficult if not impossible for them to develop and deploy the combination of offensive and defensive forces necessary to counter successfully the various elements of US strategic forces as they develop. Finally, even if such a project were economically and technically feasible the Soviets would face the prospect that the US would detect and match or overmatch their efforts.

<sup>7</sup> Vice Adm. Noel Gayler, the Director, National Security Agency, and Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, believe that it is more likely than not that the Soviets are seeking some measure of superiority. The massive Soviet R&D effort and the pace of their deployment support this view. Some visible superiority would provide the Soviets with advantage in political affairs and greater leverage in crisis confrontations. They do not, however, believe the Soviets are seeking the capability to limit any US attack to tolerable levels, as this capability is not feasible.

~~TOP SECRET~~

the numbers of SS-9 and SS-11 launchers for 1 September 1969 reflect our uncertainty as to the length of time required for launchers to become operational once they are externally complete.

	1 SEPTEMBER 1969	MID-1970	MID-1971
Soft			
SS-7 .....	128	128	128
SS-8 .....	14	14	14-0
Hard (Triple Silo)*			
SS-7 .....	69	69	69
SS-8 .....	9	9	9-0
Hard (Single Silo)*			
SS-9 .....	174-198	222	270-282
SS-11 .....	640-650	780-830	820-900
SS-13 .....	10-20	40	50-60
<b>TOTAL*</b> .....	<b>1,044-1,088</b>	<b>1,262-1,312</b>	<b>1,360-1,439</b>

\* We have in the past estimated that these sites were designed to remain completely operable when exposed to overpressures on the order of 200-400 psi. Studies are now underway to determine the most probable overpressures required to render them inoperable. For the position of Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, see Appendix I.

\* We estimate that there is a silo at each of the SS-9, SS-11, and SS-13 complexes which serves as a crew training facility and is not part of any group in the complex. Additionally, the Soviets have about 55 completed launchers and about 15 others under construction at Tyuratam and Plesetsk which we associate with ICBM development and troop training. We believe that most of the above launchers could be readied to fire at the US. We are unable to make any valid estimate of the time required to ready them, their reaction times, or the availability of missiles for them.

16. Certain features characterize the Soviet ICBM force as a whole: (a) the payload capacity is high, primarily because of the large size of the SS-9, (b) all Soviet ICBMs have re-entry vehicles (RVs) with low ballistic coefficients and large radar cross sections; the shape makes them less accurate and more vulnerable to detection and interception, but facilitates the design and packaging of nuclear weapons, and may make them more adaptable to hardening against the radiation effects of the ABMs attacking them, (c) the Soviets probably do not plan to fire a second missile from hard launchers, but we believe that soft launchers have a refire capability, and are equipped with an average of two missiles per launcher, (d) we believe that Soviet operational ICBMs do not yet carry multiple re-entry vehicles although they are under development.<sup>8</sup>

<sup>8</sup> In this estimate, the words "multiple re-entry vehicles" include both MRVs and MIRVs. See the Glossary for definitions of MRV and MIRV.

~~TOP SECRET~~~~TS-190492~~

17. The SS-7, SS-8, SS-11, and the SS-9 with its lighter payload (about 10,000 pounds) have all been tested to ranges adequate to attack targets throughout the US from present deployment complexes. The SS-13 and the SS-9 carrying its heavy payload (about 13,500 pounds) have not. All these missiles, save for the SS-9, are estimated to have CEPs of 1.0 n.m. or greater and are hence more suitable for use against relatively soft targets.

18. As tested to date, the solid-propellant SS-13 has carried a payload of [ ] to a range of 4,300 n.m. (N.R.E.);<sup>9</sup> this is insufficient to reach targets in the US from the ICBM complex where the SS-13 is now deployed. With [ ] we estimate that its range with the same payload would be about 5,000 n.m., sufficient to cover targets lying within a line extending from southern Oregon to Raleigh, North Carolina. We do not know what the maximum range of the SS-13 may be, [ ]

19. Only the SS-9, which has a large yield as well as being the most accurate of the Soviet intercontinental missiles, is capable of effective attack on hard targets. Recent analysis [ ] strongly suggests that the accuracy of the SS-9 has been improved since 1965. We previously estimated that the CEP of the SS-9 fell somewhere within a span of 0.5-0.75 n.m. depending upon the guidance technique employed. We now estimate that its CEP lies toward the low side of this spread whatever guidance is employed.<sup>10</sup>

20. The SS-9 with its heavy payload has been fired into the Pacific to a distance of 5,100 n.m. These firings, however, took advantage of the earth's rotation; on the same trajectories, but fired north toward the US, the range would be only about 4,700 n.m. At this range only those missiles in the nearest

<sup>9</sup> N.R.E. (Non-rotating-earth). Soviet ICBMs are normally test fired in an easterly direction. Thus the earth's rotation increases the distance that the missile covers. The term "non-rotating-earth" is used to define the range of a missile without the effects of the earth's rotation. A vehicle fired on a trajectory over the pole would have a range about equal to the "non-rotating-earth" range. Except where otherwise noted, the range figures in this estimate are N.R.E.

<sup>10</sup> Rear Adm. Daniel E. Bergin, for the Acting Director, Defense Intelligence Agency; Brig. Gen. DeWitt C. Armstrong, III, for the Assistant Chief of Staff for Intelligence, Department of the Army; Rear Adm. Frederick J. Harlfinger, II, the Assistant Chief of Naval Operations (Intelligence), Department of the Navy; and Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, estimate that the CEP of the SS-9 system for present deployment is about 0.5 n.m. whatever guidance is employed. They believe that further improvements to guidance systems alone could allow a CEP of about 0.35 n.m. for the SS-9 by 1970-1971.



~~TOP SECRET~~

deployment complex could reach the US (except Alaska) and even they could reach only to the extreme northwestern corner of the country.

21. It seems implausible that the Soviets would develop an ICBM with a payload so heavy that it could not reach important targets in the US. By

the SS-9 with heavy payload would go approximately 5,000 n.m. This would enable missiles launched from the deployment complex nearest the US to reach to a line extending roughly from San Francisco to Boston, within which lie five of the six US Minuteman complexes. With heavy warheads, however, most SS-9s would not reach that far. Finally, by

the range could possibly be increased to about 5,400 n.m.; all of the Minuteman complexes fall within that range from at least one SS-9 complex. Because of the uncertainty in performance which would be involved we doubt, however, that the Soviets would plan to use the missile in this manner without flight testing.<sup>11</sup>

#### *New Developments*

22. The Soviets will almost certainly take steps to reduce the vulnerability of their re-entry vehicles (RVs), especially in the light of the US decision to deploy ABMs. They are capable of developing warheads hardened against radiation kill techniques.

They could have exoatmospheric penetration aids a year or so after the initiation of flight testing; a terminal decoy program would probably require a year or two more. We believe the Soviets would test these aids to ICBM range, and that we could identify them a year or two before IOC.

23. Some refinement in the CEP of ICBMs could be achieved by further improvements to guidance systems alone (perhaps down to 0.4 n.m. for the SS-9).<sup>12</sup> However, to achieve very high accuracy (on the order of 0.25 n.m.)

<sup>11</sup> Rear Adm. Daniel E. Bergin, for the Acting Director, Defense Intelligence Agency, and Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, believe that the SS-9 (heavy), configured for operational deployment, has a range capability up to 5,400 n.m. This 5,400 n.m. operational range could be achieved

They believe this is feasible with no appreciable degradation of reliability.

They do not believe that the Soviets would deploy it so extensively if they had doubt about it reaching important targets in the US.

<sup>12</sup> For the views of Rear Adm. Daniel E. Bergin, for the Acting Director, Defense Intelligence Agency; Brig. Gen. DeWitt C. Armstrong, III, for the Assistant Chief of Staff for Intelligence, Department of the Army; Rear Adm. Frederick J. Harlfinger, II, the Assistant Chief of Naval Operations (Intelligence), Department of the Navy; and Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, see their footnote to paragraph 19.

~~TOP SECRET~~

the Soviets would need new guidance systems and new RVs; we do not believe they could make these improvements before 1972. We are confident that we would detect and identify their efforts to improve accuracy during flight tests, although we probably could not determine the precise accuracy achieved.

24. [ ] recent SS-11 firings suggests that the Soviets are either modifying this missile or developing a variant of it.

[ ] Further data must be collected and analyzed before we can better understand what is involved.

25. A most important Soviet development is already under way—the development of multiple re-entry vehicles. These RVs may be either individually targeted (MIRV) or not (MRV). Assuming no arms limitation agreement to the contrary, we believe that within the next few years the Soviets will deploy MIRVs. The evidence at present does not permit a confident estimate of the characteristics and capabilities of the systems which might be deployed, and especially of whether they may have a capability against widely separated targets, or only against those which are fairly close together. In the following paragraphs the evidence is discussed, and various options open to the Soviets are set forth.

26. Since 23 August 1968, the Soviets have conducted seven tests of the SS-9 with a heavy payload containing three separate RVs; the latest test was on 22 May this year. We believe that each RV weighed about 4,000 pounds and could carry a warhead [

[ ] In all seven tests the RVs followed simple ballistic trajectories, that is, they were not independently guided after separation from the carrier.

27. These tests have demonstrated a simple MRV, and it may be that this is all that they were intended to achieve. When this line of development was initiated, which must have been several years ago, the Soviets were aware of the US development of MRVs for the Polaris system and of the Nike-Zeus ABM system. A simple MRV would have been an effective answer to the Nike-Zeus, which had a small warhead and depended on the physical destruction of its RV target. As time went on, the Soviets probably gained a general understanding of the planned Sentinel ABM system, but may not have understood the Spartan missile's different method of kill [

[ ] If they did understand the Spartan's kill capability, they may have decided to go ahead with the system under development and try to improve its capability for penetration by hardening the warheads.

28. As tested to date, this MRV system would confront the Sprint element of the US ABM system with three separate targets. It seems unlikely that the

RVs can be sufficiently hardened to present the Spartan with the same problem, but in any case the defenders would have to judge whether any incoming objects that survived had been neutralized. Except as a possible counter to ABM, however, the system as demonstrated does not improve Soviet capabilities to attack individual targets. In general, an ICBM so equipped would be no more effective against a soft target than one with a single large payload, and it would be less effective against a single hard target. A simple MRV system of this type could reach IOC late this year.

29. An alternative system can be postulated and related to the current Soviet test program—one with sufficient flexibility so that variations in the dispersal pattern of the RVs would allow each to be targeted against closely spaced individual targets, i.e., Minuteman silos. In considering this possibility the following points are pertinent:

- a. Evidence [ ] suggests that the mechanism within the ICBM itself is more sophisticated than necessary if this development were only to achieve a simple MRV. In this hypothesized system, variations in the size and shape of the impact pattern could be achieved [ ]

[ ] to create the variety of patterns needed to target any substantial portion of the Minuteman force, i.e., so that each individual RV would impact within the required distance of the particular Minuteman silo which was its target.

- b. The orientation of the impact pattern must also be capable of change to achieve independent targeting. To do this the payload must be oriented properly either before launch or during powered flight, prior to release of the RVs. [ ]

- [ ]
- c. We believe that the Soviets would want to test a capability to vary the size, shape, and orientation of the impact pattern, and that we will detect such testing if it occurs. The question then arises: were the very slight variations in performance [ ] intentional and part of the tests, or were they random, [ ]

[ ] On this point opinions differ. If the variations were intentional, this would indicate that the test series was indeed pointing toward development of the independently targeted system we have hypothesized in this paragraph; if they were not intentional, the system would best be interpreted as a simple MRV.

30. If the Soviets are in fact aiming for the system postulated in the preceding paragraph, it could reach IOC in late 1970 at the earliest. Further testing would certainly be required to develop the flexibility in spread and dispersal pattern needed for such a system, and we probably would be able to identify such testing if it occurred. At present, however, we cannot estimate with confidence whether the Soviets are developing a system of this type or a simple MRV.<sup>18</sup>

31. If this program is directed only toward a simple MRV, it probably will be followed by development of a MIRV system capable of attacking hard targets. This follow-on system might be a highly accurate one carrying a larger number of warheads or a somewhat less accurate system which would have a small number of larger warheads. Neither system would be likely to reach IOC before 1972.

32. Although the system described in paragraph 29 would have the advantage of three independently targeted warheads, it would have no better accuracy than the SS-9 and its reliability would be somewhat less. If it is deployed, we believe that the Soviets would try to improve its performance significantly. They might still follow it with a new system of the kind described in the previous paragraph. If so, the new system would probably not reach IOC before the mid-1970's.

33. As to new ICBMs, the only detected flight tests which could relate to one are the firings [ ] The Soviets tested five of these missiles from Plesetsk between February 1968 and September 1968; two flew 2,900 n.m. to the Kamchatka Peninsula and three failed. After this rather poor performance, no more were tested until this summer, when the missile was successfully flown three times to Kamchatka. The first stage propellant is unknown, but the second stage clearly employs liquid propellants. There is apparently enough propellant in the second stage to fly the missile on the order of 4,000 n.m. With that range, the system could not reach the US from present ICBM deployment complexes; thus it is possible that it will have an

<sup>18</sup> Rear Adm. Daniel E. Bergin, for the Acting Director, Defense Intelligence Agency; Rear Adm. Frederick J. Harlfinger, II, the Assistant Chief of Naval Operations (Intelligence), Department of the Navy; and Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, believe that although there are still unresolved technical issues, the system postulated in paragraph 29 offers the more plausible explanation of the nature of the weapon system under test because of the following:

- a. The SS-9 missile is the high-accuracy ICBM system of the Soviet Union;
- b. In the observed flight tests a clear attempt has been made to minimize the degradation to the CEP [ ]
- c. The use of multiple warheads independently targeted would multiply the effective number of boosters, while the limitation to only three RVs still provides sufficiently great yield in each RV to be effective against hard targets;
- d. The footprint size is comparable with the silo spacing in the Minuteman fields, although the specific variations required have not been demonstrated.

~~TOP SECRET~~

IRBM role. But until more evidence becomes available on the first stage, we cannot make a valid estimate of the maximum range of the system. We believe that another year or year and a half of flight testing will be required before the system can reach IOC, and we should be able to determine its characteristics and thus its mission before it reaches that stage.

34. When NIE 11-8-68<sup>14</sup> was published last fall, we estimated that the Soviets were developing a new large, liquid-propellant ICBM as a follow-on to the SS-9, which could be ready for deployment in the 1970-1972 period. We estimated that it could have a CEP [ ] by 1972 and carry a warhead [ ] we considered it the best candidate to carry a sophisticated re-entry system. We continue to believe that such a development is likely but, since no tests have been detected to date, IOC will probably not be reached until 1972 or later.

35. In NIE-11-8-68, we estimated that the Soviets would seek to improve the quality of their ICBM force by modifying the SS-11, which they may now be doing. And we held that they might develop a new, small, liquid-propellant ICBM and a new, small, solid-propellant ICBM. Recent tests [ ] may relate to the former system, and possible Soviet dissatisfaction with the SS-13 may lead to development of a new solid-propellant missile. Thus, both of these small follow-on systems remain as possible developments. We have no evidence that the Soviets will develop a mobile version of the SS-13 as estimated last year, and now consider it unlikely that they will do so.

36. In NIE 11-8-68, we noted that Soviet planners might consider an attempt to achieve a nuclear pindown of US missile forces. This tactic might offer advantage as part of a deliberate surprise or pre-emptive attack on the US. Considering the manifold uncertainties involved in such an attack, however, we believe that the Soviet leaders could have no assurance that the USSR would not receive unacceptable damage in return. We have no evidence concerning Soviet intentions to use this tactic. Nevertheless, in an effort to optimize their damage-limiting capability under the various circumstances in which a nuclear war might erupt, the Soviets may include this tactic in their planning for the employment of their strategic forces.

37. In sum, our evidence on new ICBM development is scanty and inconclusive. Nevertheless, over the next 10 years the Soviets surely will bring new ICBMs into service. We continue to believe that they will develop a large, liquid-fueled system as a follow-on to the SS-9 and that it could reach IOC as early as 1972. In addition, they will probably develop at least one new, small ICBM—either a liquid- or solid-propellant system—suitable for mobile as well as fixed deployment. It could reach IOC in 1972 or 1973. (If the

<sup>14</sup> See NIE 11-8-68, "Soviet Strategic Attack Forces," dated 3 October 1968, ALL SOURCE, RESTRICTED DATA.

~~TOP SECRET~~~~TS 190492~~

[ ] is an ICBM it could reach IOC somewhat earlier.) If, however, the recent tests of modifications to the SS-11 are aimed at improving that system's capabilities, the development of a small follow-on ICBM will probably come later in the period of this estimate.

#### *Future Force Levels and Composition*

38. Our evidence provides little basis for a confident estimate of Soviet ICBM force levels beyond the next few years. It is almost certain that the Soviets themselves have not fixed on definite goals for their strategic forces for the period of this estimate, and even their intermediate goals may be altered by events. Their decisions will, of course, be heavily influenced by developments on the US side—notably ABM and MIRV deployment—and they will involve not only ICBMs but the whole mix of strategic offensive and defensive forces. The number of launchers will probably become less significant in Soviet calculations than the numbers and kinds of re-entry vehicles. Their decisions as to numbers of ICBM launchers will be affected by the nature and extent of qualitative improvements to their own force.

39. We estimate that when all launchers under construction are completed and all groups filled out, the Soviets will have some 1,360 operational ICBM launchers. There will probably be some additional SS-9 and SS-11 deployment, but these programs have now been underway for about five years, and may not continue beyond the next year or so. Moreover, the Soviets will probably deactivate most or all of the 220 older launchers during the period of this estimate. Allowing for the phase out of these older launchers and some additional SS-9 and SS-11 deployment, some 1,300 launchers appears to be a minimum force.

40. It is possible that the Soviets will stabilize the ICBM force near this level. If they are seeking rough strategic parity, they might consider that by building an ICBM force somewhat larger than that of the US they compensate for their inferiority in manned bombers and (for the next several years at least) in ballistic missile submarines. Or they might reason that a force of this size, together with developments in their other forces, would provide some margin of advantage over the US, without being so large as to set off another wave of US deployment. In either case they would continue to make qualitative improvements in the force which would probably include MIRVs, and perhaps the retrofit of new systems into existing launchers.

41. There are several factors, however, that could push the number of ICBM launchers well beyond this level. Concern for survivability of the force could lead to additional deployment of ICBMs both in dispersed silos and in mobile launchers. Either a Soviet decision not to deploy MIRVs or a substantial delay in MIRV development could also lead to much larger numbers. And finally a Soviet attempt to achieve a substantial strategic advantage or even the sheer

~~TOP SECRET~~

momentum of military programs could have the same effect. Thus, the ICBM force could grow by some hundreds of launchers; we cannot now estimate the maximum size it might reach.<sup>15 16 17</sup>

42. Unless there is a change in the deployment patterns observed thus far, the force will be composed primarily of small ICBMs suitable chiefly for attacks on cities and other soft targets. The inventory of small ICBM silos (SS-11s and SS-13s) is now three times as large as the total for the SS-9, and if present trends continue the proportion of smaller missiles will increase. The megatonnage of the SS-9 force, however, is probably much greater, and the number of warheads potentially usable against hard targets would increase significantly if any sizable proportion of the SS-9 force were given MIRVs. Because the SS-9 is a more expensive system, its deployment to date has cost about the same as the much larger SS-11 deployment; i.e., the equivalent of about \$6 billion.

### C. Space Weapons

43. At the time of our last estimate, the Soviets were conducting an intensive flight test program of the SS-X-6 which employs the basic SS-9 ICBM booster. Between December 1965 and the latest test in October 1968, 19 SS-X-6s were

" Projections of Soviet strategic forces will be made in forthcoming National Intelligence Projections for Planning (NIPP-70).

" Mr. George C. Denney, Jr., Acting Director of Intelligence and Research, Department of State, acknowledges the serious difficulties in estimating an upper limit for Soviet ICBM deployment but considers it essential that the intelligence community address the question. Thus, he disagrees only with the statement that we cannot now estimate the maximum size which the Soviet ICBM force might reach. He believes that the most important factors in determining the extent of the Soviet build-up of ICBMs will be how they regard on-going strategic programs of the US and the extent to which both countries turn to new types of weapons, especially ABMs and MIRVs. The Soviets will of course attempt to arrive at a combination of their own strategic forces which will appear most advantageous to them in the light of these and many other considerations—economic, political, and psychological. Considering all these factors, he believes that a projection of 1,800 ICBMs represents a reasonable estimate of the upper limit that the Soviets might reach within the period of this estimate with a sustained effort which included a MIRV program and a follow-on ICBM. This is not an estimate of Soviet capabilities but a judgment of the upper end of the range within which the Soviet ICBM force is likely to fall.

" Rear Adm. Daniel E. Bergin, for the Acting Director, Defense Intelligence Agency; Brig. Gen. DeWitt C. Armstrong, III, for the Assistant Chief of Staff for Intelligence, Department of the Army; Rear Adm. Frederick J. Harlfinger, II, the Assistant Chief of Naval Operations (Intelligence), Department of the Navy; and Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, recognize the uncertainties in making long-term estimates of Soviet ICBM goals, but do not believe they are any greater than those relating to long-term estimates of other strategic systems. They consider it essential to estimate the most probable Soviet ICBM force levels. They believe that the most likely Soviet force goal during the period of this estimate will be between 1,500 and 1,800 launchers. The actual number within this range will depend on the number of MIRVs which are deployed.

~~TOP SECRET~~~~TS 190492~~

tested; five flew a depressed ICBM trajectory from Tyuratam to Kamchatka or the Pacific. The other 14 tests were intended to be orbital flights to be brought down in the USSR prior to completing their first full revolution of the earth; 10 of these were successful. In all the successful tests, the deboost stage and the RV were reoriented late in the flight and the deboost stage ignited, causing the RV to impact short of the point it would have reached had it followed a true ballistic course. [

D

44. The goal of this test program is still not clear. The vehicles tested have not demonstrated the ability to fly over the North Pole and attack the US on the initial orbit; if the system were to be deployed at the three westernmost SS-9 complexes and flown over the South Pole, it could reach only the eastern third of the US. Either a reduction in the observed payload or a modification of the SS-X-6 booster capability would be required for the system to achieve full coverage of the US over either pole. We have not detected tests aimed at such modifications and believe that we would have done so if they had been made. We estimate that the Soviets will undertake further testing and troop training firings if the system is deployed as a FOBS.

45. If the goal is a retrofired depressed trajectory ICBM, we do not have a good explanation for the number of tests in the fractional orbit mode. These tests may, however, have enabled the Soviets to observe the retrofire and re-entry phase while the system was coming back into the USSR. It is possible, therefore, that the Soviets have tested the system enough to deploy it as a retrofired depressed trajectory ICBM should they choose to do so. [

lead us to believe that the SS-X-6 is not yet operational as a retrofired depressed trajectory ICBM. ]

46. The Soviets may be trying to develop a dual purpose weapon which could perform either of the above missions, both of which could degrade US early warning and the value of US anti-missile defenses. It is also possible that the Soviets are developing this system for a purpose not yet clear to us. The 11 month interval since the last test has prevented us from gaining a better understanding than we had when NIE 11-8-68 was published. We think the chances are better than even that the SS-X-6 will be deployed. However, in light of our uncertainties, we cannot estimate the type of system being developed, its probable IOC date, and how or in what numbers it will be deployed.

47. In this and other space systems that they are developing, the Soviets are working with hardware and space technology which could be used as the basis



~~TOP SECRET~~

for a multiple orbit bombardment system (MOBS). But we believe that the Soviets are unlikely to develop such a system and deploy it in space during the 1970's because:

It would not compare favorably with ICBMs in terms of effectiveness, reliability, vulnerability, average life, and susceptibility to loss of control from accident or countermeasures.

The Soviet leaders would almost certainly recognize that deployment of such a system in violation of the outer space treaty would entail serious political consequences.

They would also have to be concerned that it would give a strong new stimulus to US military programs.

However, the continued development of nuclear technology and space projects will yield technology applicable to a MOBS. In the unlikely event that the USSR decides to push ahead, we believe that we could identify a MOBS sometime during the test program of the complete system, which would probably extend over at least a year.

#### D. Nuclear-Powered Ballistic Missile Submarine Force

##### *Present Status*

48. Our estimate of the strength and composition of the Soviet nuclear powered ballistic missile submarine (SSBN) force over the next two years is as follows:

CLASS	LAUNCHERS PER UNIT	1 SEPTEMBER		
		1969	MID-1970	MID-1971
H-I .....	3	1	0	0
H-II .....	3	7	8	8
Y .....	16	5-6	10-14	17-22
TOTALS .....		13-14	18-22	25-30*

\* The Soviets also have both nuclear and diesel-powered submarines fitted with cruise missiles. Although these ships have the primary mission of countering naval forces, especially aircraft carrier task forces, the nuclear powered portion (about 50 percent) of this force in particular has capabilities to attack strategic land targets lying near the US coast as well as in areas peripheral to the USSR. The use of the cruise missile force in a strategic role would complicate the US defensive problem and in supplementing the SLBM force could add to the weight of a nuclear attack. Cruise missile submarines will be discussed in the forthcoming NIE 11-14-69, "Capabilities of Soviet and East European General Purpose Forces."

In addition, the Soviets have one H-III class submarine which has been fitted with six tubes. The Soviets may be using the H-III as some sort of a test bed; we do not believe that it will become the pattern for a future conversion of the II-class or the prototype for a new class.

~~TOP SECRET~~~~TS 190492~~

49. The H-I class carries the surface-launched 300 n.m. SS-N-4 missile, but conversion to the H-II, with the submerged-launched 650 n.m. SS-N-5, is virtually complete. The Y-class is fitted with the submerged-launched SS-N-6 missile, which we estimate has a range of 1,300 n.m. We estimate that since the launching of the first Y-class submarine at Severodvinsk in the late summer of 1966, eight more have come down the ways, though—as the table shows—we doubt that all are yet in commission. We believe that construction has started at Komsomolsk also. Severodvinsk is estimated to be producing 4-6 units per year; we estimate that by late this year or early next year, Komsomolsk will be producing two a year.

50. Since the last estimate, there have been two patrols each in the Atlantic and Pacific by H-class submarines, as compared to none during the previous year. This probably reflects the return to operational status of submarines which had been undergoing modification. We have recently detected for the first time the deployment of Y-class submarines into the Atlantic. No ballistic missile submarines have ever been detected in the Mediterranean.

51. In 1967 the Soviets experimented with open ocean support and replenishment of both nuclear and diesel submarines, using a variety of auxiliary and support vessels. One E-II cruise-missile submarine remained at sea for about six months. In the summer of 1969 the Soviets again carried out a limited support and replenishment operation in the Western Atlantic in connection with the naval visit to Cuba. Should this support concept be put into regular practice, it could serve, to some extent at least, as a substitute for distant land-based submarine facilities. This would substantially increase the time ballistic missile submarines could remain on station and might permit more of the force to be continuously on patrol, thus complicating US problems of anti-submarine defense.

52. The Soviets would, of course, find it helpful to have access to some kind of facilities in the vicinity of the US for use in supporting submarines on far-distant patrol. The only such possibility at present is Cuba. They would recognize that any attempt to use Cuba for this purpose would alarm the US, which might regard it as a violation of the Kennedy-Khrushchev understanding. The recent Soviet naval visit to the Caribbean was probably part of a general Soviet plan to extend the area of fleet operations or even a specific response to US naval excursions into the Black Sea. It could also have been a test of US reactions to a visible Soviet naval presence in the area. (For additional discussion on this point see paragraph 25 of NIE 85-69, "Cuba, Castro, and the Course of the Revolution," dated 2 September 1969, SECRET.)

53. When the Y-class becomes operational in some numbers, the Soviets may establish a continuous on-station pattern for ballistic missile submarines. Because of the lack of forward bases and the operational limitations of the force,

~~TOP SECRET~~

however, the Soviets probably could keep no more than about 30 percent of their SSBNs continuously on-station in potential missile launch areas off the US. Alternatively, they may put only a few submarines (say five percent of the force) on patrol and keep the rest in home waters. In this case, essentially all deployable SSBNs—about 80 percent of the force—could be sent to sea at a time of emergency or tension. Given an extended time of tension, some of the units in overhaul or conversion could be made available and perhaps 85 percent of the force could be deployed.

#### *Weapons System Development*

54. We expect the Soviets to continue research and development of submarine-launched missiles. In fact, the first of a new series may have reached the flight test phase; on 21 June a missile probably launched from the Nenoksa naval missile test center near Severodvinsk flew slightly over 3,000 n.m. and impacted successfully on Kamchatka. (The longest previous flight of a Soviet naval missile was that of the SS-N-6 to 1,100 n.m.)

55. The evidence indicates that the new missile is larger than the SS-N-6; it may be the Sawfly, which the Soviets paraded in 1967 and which they stated was a naval missile. It may be intended for the Y-class, but retrofit would probably require considerable modification of the submarine. We have no evidence concerning the development of a multiple re-entry vehicle system for SLBMs.<sup>18</sup> In addition to new submarine construction, the Soviets are probably working to improve the capabilities and performance of current types with respect to noise reduction, speed, diving depth, and navigational accuracy.

#### *Future Force Levels and Composition*

56. We continue to believe that the Soviets are building a ballistic missile submarine force which will be roughly comparable to the US Polaris fleet by the mid-1970's. The Soviets might define such comparability in terms of numbers of Polaris-type submarines, in terms of numbers of submarine missile launchers, or in terms of launchers that could be maintained continuously on station. We believe that the Soviets would see a force of from 35 to 50 submarines of the Y-class or a new class, together with the H-class units, as meeting these requirements.

<sup>18</sup> Rear Adm. Frederick J. Harlfinger, II, the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, believes that a new naval ballistic missile, such as the one discussed in paragraph 54, will carry a more sophisticated RV system, e.g., MIRV, in the mid-1970's.

~~TOP SECRET~~~~TS 190492~~

E. Heavy Bomber Force

*Present Status*

57. Our estimate of the strength of the Long Range Aviation (LRA) heavy bomber/tanker element for the next two years is as follows:

	Mid-1969	Mid-1970	Mid-1971
Bear .....	105-110	105-110	100-110
Bison .....	80-90	75-85	70-85
TOTAL .....	185-200	180-195	170-195

58. Some Bisons—probably about half those assigned to LRA—serve as tankers and we believe that they will not be converted to a bomber role. The other half of the Bison force and about half of the Bears are equipped to accept aerial refueling. Refueled Bears could attack targets in the US directly from their home bases. Bears not equipped for aerial refueling would have to be staged through Arctic bases in order to achieve good coverage of the US on two-way missions. The Bison would require both Arctic staging and aerial refueling.

59. Aerial refueling continues to be a routine part of heavy bomber training; flights to points off the North American coast, first noted in early 1968, have apparently become routine also. This year we have noted an overflight of Shemya and a mission to a point just off Newfoundland, which probably involved the use of tankers staged through the Arctic to refuel bombers operating from a base in southern USSR.

60. We continue to believe that the Soviets would commit virtually their entire force of heavy bombers and tankers in an aircraft attack against the US (except Alaska). The number of aircraft to reach US defenses would depend on how many received aerial refueling and how many were staged through the Arctic.<sup>19</sup>

*Aircraft Development*

61. We have no evidence indicating that a follow-on heavy bomber is under development. Given the growth in Soviet ballistic missile capabilities we still consider it unlikely that the Soviets will introduce a follow-on heavy bomber into LRA during the period of this estimate. If they undertook to develop one, we

<sup>19</sup> The Soviets could, if they elected to do so, increase the weight of an attack against the US by utilizing a portion of the medium-bomber force on range (one-way) missions. Considering training patterns, base utilization, and air refueling limitations, as well as the size of the ICBM and submarine missile forces, we believe such use of the medium bomber is most unlikely. For a discussion of medium bombers see Section III D.

~~TOP SECRET~~

believe that we would detect the program and identify the aircraft three to four years before it became operational.<sup>20</sup>

#### *Future Force Levels and Composition*

62. By 1979, even the newest of the heavy bombers will be at least 15 years old and we have no evidence that heavy bombers are currently being produced for LRA. Thus, we estimate that by the mid-1970's the strength of the heavy bomber force will be on the order of 130-170 Bisons and Bears; most of the Bisons will probably be tankers. By the end of the period, the force will have declined somewhat further and will probably be largely deactivated.<sup>21</sup>

### III. FORCES FOR PERIPHERAL OPERATIONS

#### A. General

63. The forces to be discussed under this heading are the medium bomber element of LRA, the MRBM/IRBM force, and the diesel-powered ballistic missile submarines. Development of these forces began in the immediate postwar period. Jet medium bombers and ballistic missiles entered service in the mid- to late-1950's; by the early 1960's deployment was essentially complete. Soviet capabilities for peripheral operations have since been improved, but in general there has been little change over the past several years in the size and composition of the forces involved.

64. The forces for peripheral operations are arrayed for the most part against Europe, and in massive strength. One reason for this is probably the traditional Russian concern with Europe. Another is that numbers (or as Khrushchev said, "duplication" and "triplication") enhance survivability. And, finally, at the time these forces were deployed, the Soviets probably hoped to deter the US by holding Europe hostage until they could develop significant capabilities for intercontinental attack.

65. It now seems likely that the Soviets also see a need for sizable strategic forces against China. By its size and nature, the buildup against China indicates that the Soviets are preparing for a variety of contingencies, including nuclear war, and they are probably including some elements of the Strategic Rocket Forces

<sup>20</sup> Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, believes the USSR will act to maintain a credible bomber threat to the US in the 1970's and that additional intercontinental bombers will be introduced into LRA. The most likely candidate would be an improved version of the Bear, perhaps with a longer range air-to-surface missile; it could begin to enter LRA in the early 1970's. Alternatively, an entirely new intercontinental bomber could be introduced somewhat later.

<sup>21</sup> Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, believes the Soviets recognize the advantages in a mixed strategic attack force, and that they will maintain their heavy bomber force at about the current level throughout the 1970's.

~~TOP SECRET~~~~TS 190492~~

(SRF) and LRA in their contingency planning for operations against China. But, while there are indications of a strategic buildup against China, we are not able to assess its full extent.

**B. Land-Based Strategic Missiles**

66. The force of land-based strategic missiles for use against peripheral targets is made up almost entirely of MRBMs and IRBMs—the 1,020 n.m. SS-4 and the 2,200 n.m. SS-5. Some are deployed in soft sites; others are in groups of three or four hard launchers which constitute one aiming point per group. We believe that the Soviets are now deploying a short-range, mobile<sup>22</sup> ballistic missile system, the Scaleboard, to cover some strategic targets; we believe that this system carries the SS-12 missile with an estimated range of 500 n.m. We estimate the number of launchers now operational to be as follows:

TYPE	SOFT	HARD <sup>a</sup>	TOTAL
SS-4 (MRBM) .....	480	84	564
SS-5 (IRBM) .....	46	51	97
	<u>526</u>	<u>135</u>	<u>661</u>
Scaleboard (Mobile) .....			54 <sup>b</sup>

<sup>a</sup> We estimate that these sites have been designed to remain completely operable when exposed to over-pressures on the order of 200-400 psi.

<sup>b</sup> With its estimated range of only 500 n.m., Scaleboard is unlikely to have more than limited use in a strategic role; it is also suitable for support of theater forces. (See paragraph 71.)

In addition, there are indications that an ICBM, the SS-11, will be used at least to a limited extent in an IRBM role.

67. About 90 percent of SS-4s and SS-5s are deployed against Europe in a wide belt extending from the Gulf of Finland to the Black Sea. The remainder are located for the most part in the Far East with a few sites scattered in the Caucasus and in south-central Siberia. The Soviets have deployed the Scaleboard at a few sites along the Chinese border, and have begun to deploy it in the western USSR.

68. We believe that soft sites for both SS-4s and SS-5s can refire some 2-4 hours after the first launch. It is possible that SS-5 hard sites also have a refire capability. Even if they do, the time required to ready the silos for refire would almost certainly preclude their re-use in conjunction with even the late stages of an initial strike. We still think it unlikely that hard SS-4 sites have a refire capability.

<sup>22</sup> As used herein, a "mobile system" is one which has an established base, can move with relative ease between predetermined launch positions, and can erect and launch a missile. The term does not refer to a system which can move at random around the countryside and fire at any time from any location.

69. The role and status of the fixed field positions located at or near some SS-4 complexes remain unclear. [

] On balance, we believe that these positions do not figure prominently in overall Soviet strategic planning.

#### *Recent Developments*

70. We estimate that there has been a slight reduction in the total number of MRBM/IRBM launchers during the past year. Tests of the SS-11 ICBM last year to greatly reduced ranges (500-600 n.m.) suggest an intention to use it in peripheral operations and we believe that some are now being deployed in an IRBM role.

71. The Soviets have long claimed that Scaleboard is a "strategic" weapon, and that it is subordinate to the SRF. They are probably deploying some Scaleboards in both eastern and western USSR. These deployments seem as compatible with a mission of front support as with a strategic mission. Thus, the Scaleboard appears to be suitable both for a strategic role and for support of theater forces.<sup>23</sup>

#### *Future MRBM/IRBM Development*

72. At the time of the last estimate, the evidence indicated that the Soviets were developing solid-propellant missiles of MRBM and IRBM range. They had test-fired a solid-propellant MRBM (designated SS-14) at Kapustin Yar to a range of about 1,000 n.m. This evidence, together with testing of the solid-propellant SS-13 ICBM, suggested that the Soviets were developing a family of solid-propellant missiles which would use various staging combinations to fly their intended ranges. The SS-14 MRBM was made up basically of the upper two stages of the SS-13. We estimated that the first and third stages of the SS-13 could be used for an IRBM of about 3,000 n.m. range, and further that such a missile could probably be carried by the Scrooge TEL. Thus, we estimated that the Soviets would develop a new MRBM and a new IRBM using solid propellants, and deploy them in both fixed and mobile launchers.

73. Over the past year, we have seen little progress toward these estimated goals. The SS-14 has not been test fired since October 1968, and we have detected no tests of a solid-propellant missile of IRBM range. Thus, the Soviets may have encountered problems in the development of solid-propellant strategic missiles. They appear to have a strong interest in such missiles, however, and the magnitude of their investment in solid-propellant production facilities, which

<sup>23</sup> Use of Scaleboard in support of theater forces will be further discussed in the forthcoming NIE 11-14-69, "Soviet and East European General Purpose Forces."

is great and growing, suggests that they will push ahead. We have no present basis, however, for firm estimates as to what they will do in this area.

74. They might still proceed with the development of the SS-14 MRBM. Although they have no doubt derived some of the required data from tests of the SS-13, additional tests of the SS-14 would probably be required before it became operational. If firings resume soon, the system could reach IOC in a mobile mode by early 1970.<sup>24</sup> It could probably be retrofitted into SS-4 silos by late-1970, or reach IOC in new silos by the latter half of 1971 if construction starts soon.

75. The Soviets also still have the option of developing an IRBM from the first and third stages of the SS-13. We have no indication, however, that they intend to do so. Such a system probably could not reach IOC before 1971-1972.

76. We cannot judge whether the Soviets will develop new liquid-propelled missiles for use in peripheral operations. The only known candidate [ ] has been test-fired to a range of 3,100 n.m. It, however, is evidently capable of considerably greater range and may prove to be a new ICBM (see paragraph 33).

#### *Future Force Levels and Composition*

77. For at least the next two to three years, the force of land-based strategic missiles for peripheral operations will continue to consist primarily of SS-4s and SS-5s. Even if the Soviets were to resume active development of follow-on systems, it would be some time before they could enter service in substantial numbers. We continue to believe, however, that within the next 10 years the SS-4s and SS-5s will be phased out and replaced. Just what systems will replace them is more doubtful than appeared last year, as the above paragraphs on new missile development indicate.

78. We believe that deployment of the Scaleboard against strategic targets will be limited, because at its estimated range of 500 n.m. it can reach only a small number of strategic targets from within the USSR. The best present candidate for new deployment is probably the SS-14 MRBM, and we expect it to be deployed in substantial numbers. The evidence indicates that it will probably first appear in a mobile configuration. We believe, however, that a substantial number will also be deployed in fixed hard sites which provide a higher level of readiness, quick reaction, and greater reliability.

79. As for longer range systems, the available evidence indicates that some additional SS-11s will be deployed for use against peripheral strategic targets.

<sup>24</sup> Since 1965, the Soviets have been displaying a mobile TEL vehicle which they claim contains a solid-propellant missile. In November 1967 they displayed the missile (Scamp) carried in the TEL, which we evaluated as a two-stage solid-propellant missile compatible with our assessment of the SS-14.



The SS-11 has demonstrated flexibility in range and its deployment would increase the survivability of the force, but we doubt that the Soviets would settle on an ICBM system developed in the early 1960's to serve as a follow-on IRBM in the 1970's. Its deployment in a new role would indicate that the Soviets see a requirement for more long-range missiles for peripheral operations. Concern with China and its growing strategic capabilities probably reinforces this requirement, and while the SS-14 could be developed to cover many strategic targets in China, the Soviets would probably prefer a longer range system which could cover virtually all of that country from sites farther from the Sino-Soviet border.

80. We therefore continue to believe that the SS-5 will be replaced by a new missile, but we cannot confidently suggest what it will be. One possibility is still a solid-propellant missile of about 3,000 n.m. range based on the first and third stages of the SS-13. [ ] is another possibility. Still another is a more flexible system, either solid- or liquid-fueled, whose range could be varied within a span of about 1,000-3,000 n.m. Such a system would provide greater target coverage than a like number of MRBMs and IRBMs, and it could be realigned to adjust to changes in the international situation and the military threat.

81. From a purely technical standpoint, the Soviets could reach IOC with a follow-on IRBM in the next two or three years, but the probable deployment of the SS-11 in a peripheral attack role, together with lack of evidence of the development of a new missile, suggests that the Soviets do not expect to have a replacement IRBM available within the next few years. We consider it unlikely that one will enter service before the 1973-1975 period.

82. Last year, we estimated the size of the Soviet MRBM/IRBM force in the mid- to late-1970's at some 500-700 launchers. The upper side of this projection assumed replacement of the present force on a one-for-one basis; the lower assumed that the development of new systems with greater flexibility and survivability would reduce Soviet requirements. However, the developments which we then foresaw have not materialized, and the present indications of future trends in the force are to some extent contradictory. Therefore, we have little basis for an estimate of Soviet force goals for the 1970's, beyond general political and strategic considerations.

83. The political and strategic situation has changed markedly since the present force was deployed. The buildup of Soviet forces for intercontinental attack has weakened the force of the "hostage Europe" concept. Moreover, hardened, dispersed silos and mobile deployment offer greater prospects of survivability than do large numbers of soft sites. We believe, therefore, that when the present force of SS-4s and SS-5s is replaced, the number of MRBMs and IRBMs deployed against Europe will be reduced.

84. The conflict with China poses new requirements for strategic forces. There are, however, fewer strategic targets in China than in Europe, and the requirements can be met to some extent by retargeting existing systems, e.g., part of the ICBM force. Moreover, the Soviets may hope for some sort of political or military solution that would obviate the need for a sizable new deployment of strategic missiles. Nevertheless, there will probably be some additional deployment (or redeployment) of strategic missiles against China. Although we cannot exclude the possibility that it will be on a large scale, it will almost certainly not reach the level of the present deployment against Europe.

85. The size of the MRBM/IRBM force which the Soviets build to meet their requirements will depend in large part on the characteristics of any new missile systems that are introduced. The Soviets might consider that mobile systems which could be shifted to meet changes in the threat would reduce the numbers required. The same consideration would apply to a flexible 1,000-3,000 n.m. IRBM. Moreover, such follow-on systems, either mobile or fixed, would have greater survivability than the SS-4 and the SS-5, thus also reducing the number required.

86. Considering the wide variations possible in the force-mix, the various courses from which the Soviets could choose to meet their requirements, and our uncertainty as to what extent the Scaleboard and the SS-11 will be deployed for peripheral strategic operations, we are less confident than before concerning the future size of the Soviet MRBM/IRBM force. This uncertainty leads us now to project an MRBM/IRBM force falling somewhere within a range of 400-700 launchers for the mid- to late-1970's; it will probably include a higher proportion of longer range systems than it does at present. In addition there will probably be some additional deployment of the Scaleboard and the SS-11 against peripheral strategic targets.

C. Diesel-Powered Ballistic Missile Submarines

87. Our estimate of the strength and composition of the Soviet diesel-powered ballistic missile submarine force through mid-1971 is as follows:

CLASS	NUMBERS OF LAUNCHERS			
	PER UNIT	MID-1969	MID-1970	MID-1971
G-I .....	3	14	12-11	10-8
G-II .....	3	8	10-11	12-14
Z-Conversion .....	2	5	3	1
TOTAL .....		27	25	23*

\* See footnote \* to the table in paragraph 48 for our views concerning the Soviet cruise-missile submarine force.

The G-I class, armed with the surface-launched 300 n.m. SS-N-4 missile, is being converted to G-IIs, which carry the 650 n.m. submerged launched SS-N-5. If all the G-Is are converted, the changeover could probably not be completed before 1973. Meanwhile, at any given time, up to six of the G-class are in the process of conversion or overhaul and hence not operational. A further improved missile for the G-class is possible, but we think unlikely. The Z-class submarines are old and have been relatively inactive of late; they will probably be phased out of the force by 1972.

88. The level of out-of-area operations by G-class submarines remains low, probably due in part to the conversion program. Diesel-powered submarines have much less endurance than nuclear ones and are more susceptible to detection by acoustic systems. Primarily for the first reason, we believe that G-class submarines operating in the Atlantic would probably be targeted for the most part against Europe and island bases. Those operating in the Pacific would probably be used against Alaska, Hawaii, Asia, and other targets in the Pacific Ocean. A few may now be committed against targets in the northwest US, perhaps as an interim measure until more nuclear-powered types become available. It seems highly unlikely that any new diesel-powered ballistic missile submarines will be built.

#### D. Medium Bomber/Tanker Forces <sup>25</sup>

##### *Present Status*

89. We estimate the strength of the medium bomber/tanker element of LRA through mid-1971 as follows:

	MID-1969	MID-1970	MID-1971
Badger .....	540-570	500-550	450-525
Blinder .....	170-180	175-210	175-225

Badger production ceased in 1959, but the number of Badgers in service has not decreased as rapidly as we expected, and this reduction has been offset by the introduction of about the same number of Blinders. Production of Blinders during the past year probably has been no more than three per month.

<sup>25</sup> Maj. Gen. Jammie M. Philpott, the Assistant Chief of Staff, Intelligence, USAF, considers that this section seriously underestimates the present and future manned aircraft threat to the US. He continues to believe that in an all-out nuclear assault against North America the Soviets would utilize a large force of Badgers for attacks on the US, even though this would mean one-way missions for most of them. Additionally, he believes that the Soviets will deploy a new or improved bomber with intercontinental capabilities to maintain the size of the medium bomber force at about 500 aircraft in the late 1970's. This would insure a capability to attack targets simultaneously in both North America and Eurasia, a contingency that may well be anticipated in view of the hostility of Communist China towards the Soviet Union.

90. The number of aircraft, both Badger and Blinder, equipped to carry ASMs increased during the past year; 175-250 Badgers and about 70 Binders are now estimated to be so equipped. The Badger carries the AS-5 missile, which has a range on the order of 100 n.m.; training with that missile is observed regularly. The Blinder is equipped with the supersonic AS-4, with a range on the order of 250 n.m., but there has been little evidence of training with that missile, perhaps because of problems with the system. We estimate that only a few, if any, additional bomber units will be equipped to carry ASMs. We continue to believe that medium bombers are intended primarily for use in Eurasia, and do not figure prominently in Soviet plans for attack against North America.<sup>26</sup>

#### *Aircraft and Missiles in Development*

91. The Soviets initially experienced technical difficulties in bringing the Blinder to operational status, but these appear to have been solved. Despite the shortcomings of the Blinder, the Soviets may now see no need for a follow-on medium bomber. If they do see a need, they could, using the technology gained in developing their variable-geometry-wing fighters, develop a new supersonic-dash medium bomber having better speed, altitude, and radius of action than the Blinder. A recent report strongly suggests that such an aircraft has already reached the prototype stage.

92. We estimate that the Soviets are developing a new ASM which has a range of about 350 n.m. and a cruise speed of about Mach 3; it may be intended for the Badger or for the Bear but it almost certainly has not reached IOC.

#### *Future Force Levels and Composition*

93. The Chinese threat may reinforce Moscow's view that it has a continuing requirement for aircraft to conduct strategic operations in peripheral areas. Moreover, for political reasons the Soviets may be reluctant to rely solely on strategic forces that have no conventional capability. These requirements could be met to some extent by redeployment of LRA. Even so, the Soviets may wish to maintain their medium bomber forces at higher levels than the evidence now suggests. They could do so by continuing production of the Blinder or by introducing a follow-on medium bomber.

94. However, available evidence points to a decline in the overall medium bomber strength of LRA, due principally to a reduction in the obsolescent Badger force. We estimate that by the end of the period the medium bomber force will comprise some 175-350 aircraft, the majority of which will be Binders.<sup>27</sup>

<sup>26</sup> A few squadrons of Badgers might, however, be used to attack targets in Alaska, Canada, Greenland, and Iceland.

<sup>27</sup> If the Soviets deploy a new medium bomber of the type described in paragraph 91, these figures would be considerably higher, perhaps on the order of 400-500.

## ANNEX

### GLOSSARY OF MISSILE TERMS

- Table I: ICBM Systems
- Table II: Strategic Missile Systems for Peripheral Operations
- Table III: Submarine-Launched Ballistic Missile Systems
- Table IV: Bomber and Tanker Aircraft
- Table V: Air-to-Surface Missile Systems

{Blank page next}

INITIAL OPERATIONAL CAPABILITY (IOC)

Date the first operational unit is trained and equipped with a few missiles and launchers.

MAXIMUM OPERATIONAL RANGE (n.m.)

Air-to-Surface Systems—Slant range between launching aircraft and target at the time of missile launch.

Surface-to-Surface Systems—Maximum range under operational conditions with warhead weight indicated. In the case of ballistic missiles the maximum range figures disregard the effect of the earth's rotation.

ACCURACY

Circular Error Probability (CEP)—The radius of a circle centered on the intended target, within which 50 percent of the arriving missile warheads are expected to fall.

FRACTIONAL ORBIT BOMBARDMENT SYSTEM (FOBS)

FOBS is used to designate a system deployed on the ground, targeted prior to launch, and launched with intent to attack. Its operational and control requirements would be like those for an ICBM except for the need for a vehicle to place a warhead into an orbital trajectory and deorbit it on target. Such a vehicle would be targeted to attack prior to completion of the initial orbit.

MULTIPLE ORBIT BOMBARDMENT SYSTEM (MOBS)

MOBS is used to designate a system that could be developed and stored on the ground or deployed in space, could be launched into orbit with no immediate commitment to attack, targeted after launch, or retargeted as necessary. It would require command and control links between ground control centers and orbiting vehicles; hence it would be much more complex than either an ICBM or a FOBS.

DEPRESSED TRAJECTORY ICBM (DICBM)

DICBM is used to designate an ICBM system which is launched on a trajectory having a much lower apogee than one launched on a normal ICBM trajectory. Other ballistic missiles can also be fired on depressed trajectories.

RE-ENTRY VEHICLES AND WARHEADS

Re-entry Vehicle (RV)—That part of a missile designed to re-enter the earth's atmosphere in the terminal portion of its trajectory.

Multiple RVs (MRVs)—A payload package consisting of two or more RVs. The individual RVs are dispersed (but not independently-targeted or maneuvered) in order to confuse enemy radars, to aid penetration, and/or to increase kill area.

Multiple Independently-targeted RV (MIRV)—A payload consisting of two or more RVs each of which is independently targeted.

Maneuverable RV (MaRV)—An RV which has the capability to maneuver during free flight or re-entry.

Warhead Weight—The weight of the explosive device and its associated fuzing and firing mechanism.

RV Weight—RV weight includes that of the warhead, necessary shielding and structure, and internal penetration aids that may be present, and any other necessary or desired components.

Payload Weight—The weight of that part of the missile above the last booster stage.

Retrofire—A technique whereby the RV is deorbited or is deboosted out of a normal ballistic trajectory.

#### RANGE CLASSES

Medium-Range Ballistic Missile (MRBM)  
About 600 to 1,500 n.m.

Intermediate-Range Ballistic Missile (IRBM)  
About 1,500 to 3,000 n.m.

Intercontinental Ballistic Missile (ICBM)  
Over 3,000 n.m.

#### RELIABILITIES

Weapon System—The percentage of the alert missiles that will successfully detonate within 3.5 CEPs of their targets. This is the product of launch, in-flight, and warhead reliabilities.

Alert Rate—The percentage of the operational missile force that is maintained at normal readiness condition.

Force—The percentage of the operational missile force that will successfully detonate in the target area. This is the product of Alert Rate and Weapon System reliability.

Reaction Time—Time required to proceed from a readiness condition to launch.

Refire Time—Time required to launch a second missile from the same pad or launcher.

TABLE I  
OPERATIONAL SOVIET ICBM SYSTEMS  
ESTIMATED CHARACTERISTICS AND PERFORMANCE

	SS-7 <sup>a</sup>	SS-8	SS-9 <sup>a</sup>	SS-11	SS-13
IOC.....	1962	1963	1966	1966	1969
Maximum Operational Range-NRE- (nm).....	6,500/5,500	6,000	7,000/Unknown (See paras 20-22)	5,500	Unknown (See para 18)
Re-entry Vehicle Weight (lbs).....	3,500 [ ] 4,200 [ ]	3,500 [ ]	10,000 [ ] 13,500 [ ]	[ ]	[ ]
Warhead Weight (lbs).....	2,800 [ ] 3,300 [ ]	2,800 [ ]	8,000 [ ] 11,000 [ ]	[ ]	[ ]
Warhead Yield (MT).....	[ ]	[ ]	[ ]	[ ]	[ ]
Accuracy (CEP-nm).....	1.0-1.25	1.0	About 0.5-0.75 <sup>b*</sup>	[ ]	[ ]

<sup>a</sup> These ICBMs have two operational RVs of different weights with different maximum ranges.

<sup>b</sup> We estimate that the CEP of the SS-9 lies toward the low side of this spread.

\* See footnote of dissent to paragraph 19.

TABLE II  
OPERATIONAL SOVIET STRATEGIC MISSILE SYSTEMS  
FOR PERIPHERAL OPERATIONS  
ESTIMATED CHARACTERISTICS AND PERFORMANCE

	SS-4 (MRBM)	SS-5 (IRBM)	SCALEBOARD
IOC.....	Late 1958	Late 1961	1968
Maximum Operational Range-NRE-(nm)...	1,020	2,200	500
Re-entry Vehicle Weight (lbs).....	3,300 [ ]	3,500 [ ]	1,500
Warhead Weight (lbs).....	2,200 [ ]	2,800 [ ]	1,200
Warhead Yield (MT).....	[ ]	[ ]	[ ]
Accuracy (CEP-nm).....	1.25	0.5-0.75	0.25-0.5



~~TOP SECRET~~

TABLE III  
OPERATIONAL SOVIET SUBMARINE-LAUNCHED  
BALLISTIC MISSILE SYSTEMS \*  
ESTIMATED CHARACTERISTICS AND PERFORMANCE

	SS-N-4	SS-N-5	SS-N-6
IOC.....	1960	1963	1968-1969
Maximum Operational Range-NRE-(nm) ..	300	650	1,300
Re-entry Vehicle Weight (lbs).....	2,800 [ ]	2,800 [ ]	[ ]
Warhead Weight (lbs).....	2,200 [ ]	2,200 [ ]	[ ]
Warhead Yield (MT).....	[ ]	[ ]	[ ]
System Accuracy (CEP-nm).....	1-2	1-2	[ ]
Launch Mode.....	Surfaced	Submerged	Submerged

\* We estimate that the SS-N-3 cruise missile carried by Soviet cruise-missile submarines can deliver a warhead yielding [ ] If used against land targets, its estimated CEP would be 1-2 n.m. We estimate its likely operational range is 250 n.m.

TABLE IV  
OPERATIONAL SOVIET LONG RANGE AVIATION BOMBER AND TANKER AIRCRAFT  
ESTIMATED CHARACTERISTICS AND PERFORMANCE

	BISON	BEAR	BADGER	BLINDER	
				SUBSONIC	SUPERSONIC
Combat Radius/Range (nm) (As a free fall bomber)					
a. 25,000 lb bombload.....	2,800/5,200	4,150/7,800	..	..	..
one refuel.....	3,950/7,300	..	..	..	..
b. 10,000 lb bombload.....	3,050/5,950	4,500/8,800	1,550/2,950	1,700/3,250	1,200/2,650
one refuel.....	4,150/7,900	..	2,200/4,150	2,300/4,350	1,750/3,700
c. 6,600 lb bombload.....	3,100/6,050	4,600/9,000	1,650/3,200	1,800/3,450	1,300/2,850
one refuel.....	4,200/8,100	..	2,300/4,400	2,350/4,500	1,850/3,900
d. 3,300 lb bombload.....	3,150/6,150	4,700/9,300	1,750/3,400	1,850/3,650	1,400/3,050
one refuel.....	4,250/8,250	..	2,400/4,600	2,450/4,650	1,950/4,050
e. With ASM					
1. One AS-3 (Bear B/C).....	..	3,950/7,150	..	..	..
one refuel.....	..	5,050/9,200	..	..	..
2. One AS-4.....	..	..	..	1,500/2,800	1,000/2,100
one refuel.....	..	..	..	2,100/3,900	1,500/3,150
3. Two AS-5.....	..	..	1,200/2,100	..	..
one refuel.....	..	..	1,900/3,250	..	..

~~TOP SECRET~~~~TS 190492~~

TABLE V  
 OPERATIONAL SOVIET LONG RANGE AVIATION  
 AIR-TO-SURFACE MISSILE SYSTEMS  
 ESTIMATED CHARACTERISTICS AND PERFORMANCE

	KANGAROO AS-3	KITCHEN AS-4	KELT AS-5
IOC.....	1960/1961	1968	1965
Range ((nm)/at Speed (mach)/at Altitude (feet))			
Maximum.....	350/1.8/55,000	300/2.5/above 60,000	120/0.9/30,000 (Descending)
Operational.....	275/1.8/55,000	230/3.5/above 60,000	80/1.2/30,000 (Descending)
Warhead Weight (lbs).....	4,500-5,500	2,200	1,000-2,000
Warhead Yield (MT).....	[		]
Accuracy (CEP-nm).....	1-3	1-2	1-2
Carrier Aircraft/Number of Missiles.....	Bear B&C/1	Blinder B/1	Modified Badger/2

[Next page blank]

APPENDIX I

[Next Page Blank]

Views of Major General Jammie M. Philpott, the  
Assistant Chief of Staff, Intelligence, USAF,  
on hardness of Soviet ICBM silos.

The judgment that Soviet ICBM silos have been designed to remain completely operable when exposed to overpressures on the order of 200-400 psi does not provide quantitative hardness values essential to measure the effectiveness of US weapon systems. The present judgment describes that level of overpressure at which essentially all silos *survive*. What is required is an estimate of the probable overpressure at which 50 percent of a group of similar launch facilities will be rendered inoperable. Based on a review and analysis of available data, the most probable hardness of deployed Soviet ICBM systems is estimated as follows:

SYSTEM	OVERPRESSURE *
SS-7 .....	700 psi
SS-9 .....	700 psi
SS-11 .....	[ ]
SS-13 .....	[ ]

\* Based on a one megaton weapon.

# CENTRAL INTELLIGENCE AGENCY

## DISSEMINATION NOTICE

1. This document was disseminated by the Central Intelligence Agency. This copy is for the information and use of the recipient and of persons under his jurisdiction on a need-to-know basis. Additional essential dissemination may be authorized by the following officials within their respective departments:

- a. Director of Intelligence and Research, for the Department of State
- b. Director, Defense Intelligence Agency, for the Office of the Secretary of Defense and the organization of the Joint Chiefs of Staff
- c. Assistant Chief of Staff for Intelligence, Department of the Army, for the Department of the Army
- d. Assistant Chief of Naval Operations (Intelligence), for the Department of the Navy
- e. Assistant Chief of Staff, Intelligence, USAF, for the Department of the Air Force
- f. Director of Intelligence, AEC, for the Atomic Energy Commission
- g. Assistant Director, FBI, for the Federal Bureau of Investigation
- h. Director of NSA, for the National Security Agency
- i. Assistant Director for Scientific Intelligence, CIA, for any other Department or Agency

2. This document may be retained, or destroyed by burning in accordance with applicable security regulations, or returned to the Central Intelligence Agency by arrangement with the Office of Scientific Intelligence, CIA.

3. When this document is disseminated overseas, the overseas recipients may retain it for a period not in excess of one year. At the end of this period, the document should either be destroyed, returned to the forwarding agency, or permission should be requested of the forwarding agency to retain it in accordance with IAC-D-69/2, 22 June 1953.

~~4. The title of this document when used separately from the text should be classified SECRET~~

### DISTRIBUTION:

White House  
National Security Council  
Department of State  
Department of Defense  
Atomic Energy Commission  
Federal Bureau of Investigation

~~TOP SECRET~~  
~~CONTROLLED DISSEM~~

~~TOP SECRET~~  
~~CONTROLLED DISSEM~~