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SOVIET CAPABILITIES FOR
LONG RANGE ATTACK

ANNEX C

THIS DOCUMENT CONTAINS CODE WORD MATERIAL

Submitted by the
DIRECTOR OF CENTRAL INTELLIGENCE

The following intelligence organizations participated in the preparation of this estimate: The Central Intelligence Agency and the intelligence organizations of the Departments of State, the Army, the Navy, the Air Force, and The Joint Staff.

Concurred in by the
UNITED STATES INTELLIGENCE BOARD

on 7 June 1961. Concurring were The Director of Intelligence and Research, Department of State; the Assistant Chief of Staff for Intelligence, Department of the Army; the Assistant Chief of Naval Operations (Intelligence), Department of the Navy; the Assistant Chief of Staff, Intelligence, USAF; the Director for Intelligence, Joint Staff; the Atomic Energy Commission Representative to the USIB; the Assistant to the Secretary of Defense, Special Operations; and the Director of the National Security Agency. The Assistant Director, Federal Bureau of Investigation, abstained, the subject being outside of his jurisdiction.*

*This estimate was approved by the USIB on 7 June 1961 subject to certain further action by USIB representatives, consulting as necessary with their respective principals (USIB-M-158, Item 8). This latter action was completed on 13 June 1961.

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ANNEX C

THE SOVIET ICBM PROGRAM - EVIDENCE
AND ANALYSIS

1. During the course of the past year or more, US intelligence has acquired a considerable body of additional information pertaining to Soviet programs for ICBMs and other ballistic missiles. This information, derived from a wide variety of intelligence sources, has provided new insights into the general characteristics and performance of the Soviet ICBM, the facilities required for its deployment as a weapon system, and the timing of some of the Soviet activities critical to the progress of this weapon system through research and development into the deployment phase of the program.

2. A major purpose of this Annex is to set forth the direct evidence bearing on Soviet ICBM development and deployment, together with the alternative interpretations which we believe can reasonably be assigned to various aspects of this evidence. From this we seek to arrive at a general estimate of the ICBM force likely to exist in the USSR at present and to set forth clearly the uncertainties attached to any such estimate. The problem is more difficult than that of estimating current Soviet strength in many other forms of military power. Estimates of current bomber strengths, for example, are based primarily on production and order-of-battle information of good quantity and quality, which narrows the area of uncertainty. Indirect evidence and insights drawn from Soviet military thinking and weapon systems programming practices play a much larger role in estimates of current Soviet missile strength.

3. Future estimates of many Soviet weapon programs are projected from a reasonably firm current base; it is far more difficult to establish such a base for Soviet ballistic missile programs. Moreover, the trends are at best only dimly seen. The second major purpose of this Annex, therefore, is to set forth the methodology for making an estimate of the likely future range of Soviet ICBM capabilities, using the evidence as well as insights derived from general considerations.

4. There are several reasons why considerable uncertainty should exist in present US estimates of the Soviet ICBM program, and why there should be a number of elements in the evidence which permit differing judgments. Large ballistic missile systems are new to both the US and the USSR, and it is natural that there should be uncertainty as to the precise problems and lead-times involved in quantity deployment. Ballistic missile systems require the development of new operational concepts, which are not necessarily the same in the two countries; this limits the direct applicability of analogies from US experience. Moreover, these weapon systems are being developed and deployed in a period of vastly accelerated technological change.

5. Another factor in the estimative problem, worthy of special attention, is the effect of Soviet security measures. The USSR has always regarded secrecy as a major military asset in itself, and there is evidence that ballistic missile programs have been cloaked with a very high degree of security. This secrecy goes considerably beyond the dispersal and

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concealment of launching sites, a practice which the Soviet leaders have stated is a part of their missile deployment concept. Even routine aspects of the missile and space programs have been assiduously concealed—place names like Kapustin Yar and Tyuratam continue to be withheld, despite the common use of these place names in the Western press. Khrushchev once publicly apologized for withholding the names of Soviet missile and space experts who received awards, allegedly because such recognition would make them the targets of Western provocateurs. There is much evidence that the Soviets attempt to prevent the observation of missile equipment in transit, by moving it at night, harassing or rerouting Western observers, and other means. Finally, we have recently discovered a special masking address system, apparently designed to prevent the disclosure in personal telegraphic communications of the places where missile personnel are stationed.

BACKGROUND ON THE ICBM SYSTEM

6. In NIE 11-5-61¹ we summarized the general characteristics of the Soviet ICBM system and reviewed the pattern of test range activities at Tyuratam, concentrating on the period up until about 1 January 1960, the approximate time when the majority of the intelligence community estimates that the Soviets achieved an initial operational capability (IOC) with an ICBM system of about 5,000 n.m. maximum range.² In that estimate, we reached full agreement, based on very extensive data, as to the following basic characteristics of the Soviet ICBM system which would significantly affect its production and deployment:

a. The missile itself is of relatively heavy construction and is extremely large. Depending

¹ Soviet Technical Capabilities in Guided Missiles and Space Vehicles, dated 25 April 1961. (TOP SECRET)

² See NIE 11-5-61, paragraph 17. The Assistant Chief of Staff, Intelligence, Department of the Army, and the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, believe that the IOC date did not occur this early. For their position, see paragraphs 77-80.

upon its exact configuration, it can best be described either as twice as bulky as a US Atlas or half as large as a US Saturn.

b. It employs radio-inertial guidance, requiring ground guidance equipment at the launch area.

c. It uses nonstorable liquid propellants, requiring extensive transfer facilities at launch sites and storage capacity for the equivalent of at least five large rail tank cars of propellants for each missile.

d. It is probably transportable over long distances only by rail, although very short-haul transport over well surfaced, wide radius roads may be feasible.

e. A certain amount of missile assembly and checkout must be accomplished at permanent on-site facilities, which must also include heavy equipment for handling and erecting the missile.

f. The most suitable deployment areas for the very heavy nosecone ICBMs which had been test fired prior to about 1 January 1960 would be in northwestern USSR or the Soviet Far East, the only areas from which 5,000 n.m. missiles could achieve extensive coverage of the US.

7. From the foregoing, it is clear that the present Soviet ICBM system is heavily dependent on the Soviet rail network, and that launch sites would necessarily be served by rail spurs. The system is extremely bulky and must be fairly cumbersome to handle. It does not readily lend itself to deployment in hardened sites. The most suitable ICBM deployment site would be a large, fixed facility with considerable ground support equipment.

RECENT TEST RANGE ACTIVITIES

8. Because we lack conclusive evidence on actual deployment, an estimate of the size of the Soviet ICBM force depends heavily upon what can be learned concerning the phases which must precede or accompany deployment—development and testing of the missile and associated equipment, its production, and the training of troops to use it. Our best information relates to activities at the test

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range, [

9. Three major developments are known to have occurred at the test range in the past 18 months. First, in January and July 1960, the Soviets test-fired ICBMs with somewhat lighter nosecones to ranges of approximately 7,000 n.m., sufficient to reach targets anywhere in the US from launching points virtually anywhere in the USSR. Second, in the period between mid-1960 and early 1961, they completed the construction of at least three new launch pads at the Tyuratam rangehead, marking the first major expansion in test range facilities since construction of the single launch pad which was used for all ICBM and space shots prior to 1960. Third, in early 1961, the Soviets began a very intensive new series of ICBM and space launchings at Tyuratam, which included a higher rate of ICBM shots than ever before. The chronology of construction activities and ICBM and space firings at Tyuratam is summarized on the attached chart. (See Chart)

New Launch Facilities

10. Of the new facilities at Tyuratam, one is essentially a duplicate of the original massive pad and pit. (See NIE 11-5-61, Figure 28.) The original pad and its near-duplicate, known as launch areas "A" and "B", were probably designed for both actual launchings and static firings of ICBM and space boosters. Missiles destined for these launch areas are delivered by rail to nearby rail drive-through buildings, where extensive checkout and pre-launch assembly operations are performed with the missile in a horizontal position. Missiles are then transported directly to the

launch pad by rail. Some of the ground support equipment, including instrumentation and control facilities, is permanently located in the launching area, but propellants and much ground support equipment are brought to the site on one of the several rail lines leading directly onto it. Construction times for launch areas "A" and "B" were about two years each—area "B" was begun in 1958 and was probably ready for use in about mid-1960.

11. In the second half of 1959, the Soviets began work on a pair of simplified pads without pits, known as launch area "C". (See NIE 11-5-61, Figure 29.) This launch area was photographed while under construction and its final configuration is not definitely known. Like "A" and "B", it has rail-served missile checkout and assembly buildings nearby. A single rail spur enters the pad area and some ground support equipment is apparently to be located permanently in that area, but missiles and some of the necessary ground equipment are probably to be transported from checkout buildings to the pads by road. At least some of the ground equipment serving launch area "C" is therefore significantly different from that designed for use at the other two launch areas—it probably comprises a number of units which can fairly readily be transported, checked out, and replaced when necessary. Area "C" probably represents the approximate configuration of an operational launch facility. The time required to construct this more simplified launch area was probably about 12 to 18 months—it was probably ready for use in late 1960 or early 1961.

Recent Test Firings

12. The number and pattern of test firings indicates that the USSR has been conducting a careful and generally successful ICBM development program, at a deliberate pace rather than on a "crash" basis. A major phase of Soviet ICBM testing was apparently completed in July 1960 when the lighter nosecone, 7,000 n.m. missile was proof-tested to its approximate full range into the Pacific. Up until that time, the firing program was notable for the high rate of reliability achieved

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by the missiles once they were launched: in-flight reliability averaged about 80 percent for the entire three-year period from mid-1957 to mid-1960.

13. ICBM firings resumed in January 1961, after a period of nearly six months during which only space vehicles were launched from Tyuratam. The current series of firings included 10 ICBM shots in the first four months of the year, in addition to five space launchings. This rate of activity coincides with the availability of additional launching facilities. It is a higher rate than the Soviets had previously attempted in either the ICBM or the space category. For ICBMs, the total number of launchings in the first four months of 1961 was greater than that of the entire preceding year.

14. The intensive new phase of ICBM firings has been marked by a sharp drop in the in-flight reliability of the missiles. Only six of the 10 missiles launched in the first four months of 1961 succeeded in reaching the Kamchatka Peninsula. [

activity included initial firings of a new, liquid-fueled ICBM.

Interpretations of Test Range Activity

16. From the evidence relating to test range activities we have developed three alternative hypotheses concerning the Soviet program for deployment of a complete ICBM weapon system. Subsequently, we consider these hypotheses in conjunction with the information available on production and deployment, as well as what we have learned of the strategic concepts underlying the Soviet program.

17. One hypothesis is that the activity at Tyuratam indicates a program in which, broadly speaking, the development of the missile itself, and the development of the equipment and procedure for operational deployment, were phased sequentially. In this hypothesis, launch area "A" would be designed for R&D on missiles and space boosters, and the ICBM firings up until mid-1960 would have represented development of only the missile itself. Launch area "C" would be the prototype of the first operational deployment concept. [

] Such a pattern resembles the sequence followed in Soviet development of second generation surface-to-air missiles and of short range ballistic missiles. On the basis of this hypothesis, little if any operational deployment would have occurred through 1960. Although construction of deployment sites could have been concurrent with the construction of launch area "C", a fairly steady build-up in operational capabilities would not have begun before early 1961.

18. A second hypothesis is that the basic ICBM vehicle and the associated equipment necessary to a fully rail-served operational deployment site were developed concurrently, at Tyuratam launch area "A", with initial deployment in early 1960. This would have required the construction of initial deployment sites during the R&D phase, a practice which the Soviets followed in the high priority program to deploy their first surface-to-air missile system around Moscow. It would have per-

] It is almost certain that the current firing series comprises more than one type of testing activity. [] a sharp drop in test range performance [] suggests the introduction of redesigned components in the missile system, or training firings by inexperienced personnel, or both. There is also a possibility that the

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mitted a fairly steady buildup in operational capabilities, first with 5,000 n.m. and later with 7,000 n.m. missiles. Consistent with this hypothesis, the simplified ground support installation at launch area "C" would be interpreted as either a second type of deployment configuration for the current system or a site to be used with a new missile system. [

] On this basis, the 1961 firings at Tyuratam would represent testing of modifications to the current system or R&D on a new missile system.

19. A third hypothesis is that the activities at Tyuratam indicate two deployment programs, successively phased but using the same basic missile. On this basis, an initial operational capability would have been achieved in early 1960 with a 5,000 n.m. missile in a fully rail-served deployment site. [

] The resulting deployment would have been fairly limited. The second phase of the operational buildup would have been begun in early 1961, based on the simplified area "C" deployment concept [

] Such a pattern bears some resemblance to the Soviet program for 700 n.m. ballistic missiles, which appears to have resulted in some early capabilities followed a year or so later by a larger, second phase buildup. This hypothesis allows for the deployment of some 7,000 n.m. ICBMs in fully rail-served sites, and does not rule out the interpretation that some of the 1961 firings are for further R&D.

20. The first of the foregoing interpretations is consistent with the view that a complete weapon system, including deployed operational launchers and trained crews, was probably not available until early 1961. The second and third of these interpretations are consistent with the view that the USSR has had at least some operational ICBM capability at deployment sites since about 1 January

1960. Interpretation of the test range data itself does not resolve the problem of the scale and pace of deployment. It does indicate, however, that at least until very recently the Soviets were experiencing no particular difficulties or serious setbacks in their ICBM development work.

ICBM PRODUCTION EVIDENCE

21. In NIE 11-5-61 we indicated that in early 1959 the USSR probably began to manufacture production ICBMs—that is, complete missiles of an operational type which could also be modified for use as space boosters. The information available on factory activities is sufficient only to point to a research institute near Moscow as the probable developer of ICBM prototypes, to identify the city of Kuybyshev as the most likely site for manufacture of production ICBMs, and to provide some notion of the way in which normal Soviet practices would affect the manufacture of a military item with the size and bulk of the current missile.

22. [

] we have concluded that prototype ICBMs and space vehicles were manufactured at a research institute and experimental plant, No. 88, in Kaliningrad near Moscow. This facility has done the principal design and development work on all Soviet ballistic missiles and continues to do so. In the past the practice has been, once the Soviets had decided to initiate standardized production of a missile, for Plant No. 88 to assist some other facility in undertaking production and to limit its own manufacturing activities to the further production of R&D items. Plant No. 88 has been considerably expanded in the past several years, and we believe that the additional capacity is probably being used for R&D on a variety of missiles, in keeping with previous practice. We cannot rule out the possibility, however, that some production ICBMs are being manufactured at Plant No. 88.

23. [

] Kuybyshev [] became

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involved in the program shortly before Khrushchev's announcement, in January 1959, that "series production" of ICBMs had begun. Despite intensive efforts, we have been unable

to pinpoint the plant or plants manufacturing production ICBMs, although we have succeeded in narrowing the possibilities down to a few large factories.

24. Considering the size and possible configurations of the Soviet ICBM and the relatively small amount of subcontracting normal to Soviet practice, ICBMs could be produced efficiently in a single, large factory at a peak rate of some 10-15 per month. Such a rate could probably have been achieved after a buildup period of about 18 months, i.e., by about mid-1960. If major interruptions were avoided thereafter, such a factory would have turned out some 200 to 300 production ICBMs by mid-1961. Some of these would presumably have been used for static testing and for ICBM and space launchings. Considering the number of launchings to date, and probable allocations to other nonoperational purposes, such a production facility would have provided some 125 to 200 ICBMs for operational inventory by mid-1961.

25. Actual monthly peak production rates at any single facility could be somewhat higher or lower than this, and more than one facility could be engaged in ICBM production. Our evidence on production is insufficient to support a firm estimate on these questions. However, total Soviet capabilities to produce missiles—as deduced from available production facilities, materials, and manpower—are very large. Therefore, the actual number of ICBMs available at present could be larger or smaller than the figures in the foregoing example, depending upon the peak rate actually achieved at a single plant and the possible involvement of more than one facility. Thus, we believe that once a production line has been set up and the learning period has passed, the manufacture of missiles ceases to be a pace-setting factor in a deployment program. This has probably been true of the Soviet ICBM program for at least a year.

ICBM DEPLOYMENT EVIDENCE

26. We are still unable to identify positively any ICBM launching facilities other than those at the test range. Nevertheless, over the past year or so we have acquired considerable knowledge of the basic requirements for operational sites. Moreover, some pattern is beginning to emerge from the examination of fragmentary data on suspected ICBM deployment areas. In general, the available evidence confirms that in the USSR as in the US, the major pace-setting factor in the deployment of an ICBM weapon system is the establishment of operational launching sites with their associated ground support facilities, communications and control, and logistic support.

27. Through intensive collection efforts by all available means, US intelligence has achieved partial coverage of the regions best suited to the deployment of Soviet ICBMs. However, there are large portions of Soviet territory where launching sites could have been established without detection. The inadequacy of confirming evidence regarding deployment may be attributable either to the limitations of our coverage, combined with the success of Soviet security measures, or to the fact that deployment has been on a relatively small scale to date. At present, we cannot be sure which is the case, but certain deductions can be drawn from the pattern of the available evidence and the way it relates to our collection capabilities.

Suitable Regions

28. In planning for ICBM deployment, the Soviets have had to take into account a number of logistical, geographic, and other factors. As we have already noted, the physical characteristics of the current ICBM system require that deployment sites be near rail lines, and 5,000 n.m. missiles would probably have been deployed in northwestern USSR or the Soviet Far East. These areas, however, have certain disadvantages in that (a) they are relatively vulnerable to attack by Western delivery systems; and (b) climatic conditions in the northwest would probably create severe construc-

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tion, maintenance, and operational problems. For deployment of 7,000 n.m. missiles, the Soviets would probably seek rail-served locations in interior regions with moderate climate and terrain, low population density, and high security from Western observation and attack.

29. The attached map shows that the region best suited to deployment of 7,000 n.m. missiles is very large (see Map). It includes much of the USSR from Moscow to Lake Baikal. Except for major cities, we cannot exclude any rail-served locations in this region from consideration, but the most favorable areas are east of the Urals and the Caspian and west of Lake Baikal. We believe that in general, the Soviets would greatly prefer to deploy ICBMs some distance from their borders, in order to obtain maximum security from Western observation and attack.

Suspected Areas

30. The intelligence community has analyzed the available evidence on approximately 100 specific areas where the possibility of ICBM deployment was suggested by information or deduction. As a result of this analysis, we have determined that most of these areas probably do not contain ICBM sites. However, there are about a dozen areas under active consideration by US intelligence where one or more ICBM complexes may now be operational or under construction.³ None of these areas has been confirmed or finally rejected.⁴ [

³ The Assistant Chief of Staff, Intelligence, USAF, does not concur in this sentence. He believes that there are six areas on which there is reasonably good evidence of ICBM operational deployment. He has under active consideration more than 20 additional areas where the evidence indicates the possibility that construction of ICBM launch sites is underway.

⁴ For a detailed description of the evidence on these areas, see the report by the Deployment Working Group of the Guided Missiles and Astronautics Intelligence Committee, "Soviet Surface-to-Surface Missile Deployment," dated 1 September 1960 (TOP SECRET). The re-evaluation and updating of evidence contained in that report is a continuing project, and changes will be incorporated into the basic, looseleaf document.

There have also been a few reliable reports of unusual installations, occasional observation of suspicious rolling stock, and miscellaneous other fragmentary data of varying degrees of credibility.]

31. Some of the suspected areas are in regions best suited to the deployment of 5,000 n.m. ICBMs. Two of these are at *Plesetsk* and *Polyarnyy Ural* in northwestern USSR. [

There is considerably more information on these two locations than on any of the other suspected sites. It includes, among other things, a reliable report of a large rail-served installation at *Plesetsk*, consisting of several groups of buildings and rail spurs. While there is some evidence to suggest alternative explanations for the construction at *Plesetsk* and *Polyarnyy Ural*, its timing was concurrent with the development of the 5,000 n.m. missile. We believe that these activities provide mutual cross-confirmation, and therefore estimate that *Plesetsk* and *Polyarnyy Ural* are ICBM sites which were operational as of about 1 January 1960.⁵]

32. On the basis of much less information, there is a possibility that sites were constructed during the same time period in the *Kola Peninsula* area of the northwest and, on the basis of even more tenuous evidence, at *Svobodny* on the Trans-Siberian railroad in the Far East. Finally, the evidence regarding

⁵ The Assistant Chief of Staff for Intelligence, Department of the Army, and the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, would point out that the majority opinion of the Deployment Working Group of the Guided Missiles and Astronautics Intelligence Committee is that *Plesetsk* and *Polyarnyy Ural* can be classed as possible ICBM sites. In their view of the whole Soviet ICBM effort, however, they estimate that these two sites were probably not operational in January 1960. For a full statement of their position, see paragraphs 77-80.

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medium range missiles in the *Carpathian* area includes some information which can be interpreted as pointing to the deployment in that area of ICBMs as well. We believe that ICBM deployment in the *Carpathian* is unlikely, but we cannot entirely exclude it.⁶

33. Other suspected areas are in regions best suited to the deployment of a 7,000 n.m. ICBM, and our evidence on them is more recent. [

the south.] *Yur'ya*, farther to the south.] There is also some information pointing to *Ufa*, *Saratov*, *Kirensk*, *Kandagach*, and the regions around *Akmolinsk*, *Dolon*, and *Alma Ata* in Kazakhstan as places where ICBM-related activity might be under way, but the indications are extremely tenuous. Furthermore, we can find no consistent pattern of timing or associations in the information on these and other various locations which we have examined for evidence of 7,000 n.m. missile deployment sites.

Masking Addresses

34. [

] This system is used by personnel at missile test ranges and at other places which may be associated with the deployment of long range ballistic missiles. [

⁶The Assistant Chief of Staff, Intelligence, USAF, does not concur in the judgment that ICBM deployment in the *Carpathian* area is unlikely or that the indications of ICBM related activity in the areas cited in paragraph 33 are "extremely tenuous." Moreover, in addition to the 13 ICBM suspect deployment areas cited in paragraphs 31-33 inclusive, he has under active consideration the following 13 areas for which evidence is available indicating the possibility of ICBM site construction: *Kamyshin*, *Ust Ukhta*, *Kiev*, *Taurage*, *Tashkent*, *Aralsk*, *Yakutsk*, *Chukotsk*, *Chkalov*, *Makat*, *Nizhnyaya Tura*, *Vologda*, and *Novosibirsk* areas.

Launchers Per Site

35. A key factor in assessing the significance of a suspected deployment location is the number of launching pads likely to be grouped together. On the basis of test range site configurations for large ballistic missiles at both *Tyuratam* and *Kapustin Yar*, we believe that operational launchers are paired. Each launcher probably has its own fuel transfer and handling equipment, but fuel storage, guidance, and checkout facilities are probably shared by the two launchers in each pair. More than one pair of launchers probably comprise a site, i.e., a launching complex including a base providing central support, maintenance, and communications and control facilities. Such a site-complex is probably the basic ICBM unit capable of operating independently. The individual pairs are probably separated by several miles and an entire site-complex may thus cover many square miles.

36. The grouping of pairs of launchers into such complexes is consistent with the characteristics of the current Soviet ICBM system and also with evidence available on Soviet deployment of medium range ballistic missiles. [

] Four to six launchers are assigned to the basic operating units equipped with medium range ballistic missiles—each of these regimental units is apparently capable of operating independently. The greater size and complexity of the Soviet ICBM impose additional problems of logistics and maintenance, which could argue for the grouping of a larger number of ICBM launchers in a complex. In planning their deployment sites, however, the Soviets would have had to weigh convenience of logistics and maintenance against the requirement for maximum security, which

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would dictate considerable dispersal of pairs of ICBM launchers, and probably of site-complexes as well, particularly in view of their fixed configuration.

37. Taking these factors into account, we believe it unlikely that the typical number of launchers per ICBM site differs greatly from the number for medium range missiles. However, the number of launchers at each ICBM site is likely to vary, depending on terrain, proximity to existing supply and logistical centers, and other factors. On this basis, a typical number of four or six would appear reasonable, but a number even twice as large would be feasible. We believe that a typical number of four or six is more probable than a number between eight and 12, but there is no firm evidence on this question and we cannot expect to resolve it until deployment sites are definitely identified and their configurations are established.

Site Activation Time

38. We have examined the tasks and problems involved in the construction and activation of ICBM launching complexes. When completed, these complexes must include the following: (a) the launchers themselves; (b) ground guidance and missile handling facilities; (c) test, checkout, and maintenance equipment; (d) fueling and storage facilities; (e) communications; (f) logistic support; and (g) housing and general purpose equipment. From the available evidence, we have concluded that a soft, rail-supported launching complex could probably be brought to operational readiness in some 18 to 24 months.

39. During this period, the site would be laid out and constructed, components would be installed and checked out, operating personnel would be assigned, and, finally, missiles would be brought to the site to complete the integrated weapon system. The period itself could vary depending on local weather and construction conditions, the distance from existing rail lines and supply centers, the exact number of launchers and their dispersal, and the details of the deployment concept. During much of the period, special military

and railroad construction teams, involving hundreds of men and considerable specialized equipment, would be at work on each complex. Normal Soviet practice is to employ such teams rather than workers from the local labor force—they move from place to place as new assignments are given them.

Interpretation of Deployment Evidence

40. A review of other major Soviet military construction and deployment programs (e.g., airfield construction and surface-to-air missile deployment), shows that there is often a time lag of a year and sometimes as much as two years between the start of a program and our acquisition of sufficient information to determine its scale and pace. Some compensation for this time lag is provided by the probability that work must begin at Soviet ICBM sites some 18 months to two years before they become an operational threat.

41. Considering the available evidence, our total collection capabilities, and the time lags to be expected, a minimum of two to four ICBM sites were probably under construction in 1957-1959 in areas suitable to deployment of 5,000 n.m. missiles (see paragraphs 31-32). We believe that such sites are operational at the present time.⁷ In addition, 7,000 n.m. missiles can reach targets in the US from the Tyuratam rangehead, and it must be recognized that in the event of war the USSR could employ the launchers there operationally. With respect to the other suspected locations in areas suitable to deployment of 7,000 n.m. missiles, some or all of these locations may not be ICBM sites; on the other hand, there may be such sites at locations which are unsuspected at present. There has been insufficient time to establish a pattern, the areas

⁷ The Assistant Chief of Staff for Intelligence, Department of the Army, and the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, do not believe that a minimum number of two to four ICBM sites were probably under construction in 1957-1959 in areas suitable to deployment of 5,000 n.m. missiles, nor do they believe that such sites are operational at the present time. For a full statement of their position, see paragraphs 77-80.

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are poorly covered, and the security likely to be imposed by the Soviets is stringent.

42. From the foregoing examination of the direct evidence, it is possible to derive a minimum number of operational ICBM complexes which can be supported on reasonably good evidence. In addition, the results of our search for operational deployment sites, taken together with the other elements of direct evidence, contribute to sense of the current tempo of the Soviet program. The relatively small number of suspected areas and the identification of only a few masking addresses which might be associated with ICBM deployment are consistent with the deliberate pace of activities at the test range. Further, the USSR has a greater capacity to produce and deploy ICBMs than we believe it has exercised. In sum, while the direct evidence remains insufficient to establish with certainty the present Soviet ICBM strength, it leads us to believe that the deployment program thus far has proceeded at a deliberate rather than an extremely urgent pace.

SOVIET PROGRAMMING DECISIONS

43. The year 1959 was probably a time of major Soviet decisions on military policy. In several private conversations with Western officials in the summer and fall of 1959, Khrushchev referred to studies to determine what it would cost the USSR to build ballistic missile forces sufficient to destroy the "vital centers" of the US and Europe.⁸ His references were ambiguous and are not subject to precise numerical definition—they indicate, however, that Khrushchev had recently been engaged in the planning of production and deployment programs. This was almost certainly related to the planning for major reorganization of the Soviet military establishment, announced in January 1960. Planning considerations in 1959 would have included the expectation of deployment with a 7,000 n.m. missile and a simplified deployment con-

⁸The figure quoted by Khrushchev was 30 billion rubles. This amount is not inconsistent with programs for several hundred long range ballistic missile launchers and associated missiles.

cept, for which Tyuratam launch area "C" may have been the prototype.

44. The operational deployment program which we believe is now under way will probably continue over the next two or three years. The scale and pace of this program will probably be determined largely by: (a) the view of the Soviet leaders regarding the ICBM force they require in this time period; (b) factors of efficiency in the scheduling and expenditure of resources on the present weapon system in relation to other military and economic programs; and (c) the Soviet judgment of likely trends in their own and Western offensive and defensive weapon systems. Given the rapidity of technological change and the heavy emphasis on research and development in both the missile and antimissile fields in the USSR, it is likely that Soviet ICBM deployment programming beyond the 1963-1964 period is highly tentative.

Pertinent Soviet Statements

45. In persuading their own followers to accept the military reorganization announced in January 1960, and in debating the Chinese Communists on strategy and policy, the Soviet leaders have in the past year or so revealed much of their thinking about modern weapon systems. The most pertinent of these statements have been of three types. First, there have been Soviet statements that the leadership seeks to achieve and maintain a superiority over the West in weapon systems, but the Soviets appear to be stressing their claim to a qualitative superiority in advanced weapon systems as much as to a numerical advantage. Second, there have been a number of public and private references to the potential employment of ballistic missiles against what are termed "strategic" targets or "vital centers," in contexts which seem to include both military bases and other elements of national strength such as industry, government, and population. Khrushchev and other Soviet leaders have spoken of the desirability of achieving sufficient missile strength to attack these objectives. Finally, in late 1960, Khrushchev privately told important Bloc officials that 300 missiles were

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sufficient to "destroy" the US, while 200 were sufficient for Europe.

46. The foregoing statements about targeting are quite general, but they parallel much previous Soviet commentary on the need to destroy an enemy's power base as well as its striking forces in war. Military, industrial, and population targets in Japan and the US were included in mock exercises by Soviet missile and bomber units in the Far East in 1959 and 1960. Khrushchev's reference to 300 missiles is open to various interpretations—the figure may refer to operational missile inventory or ready missiles in the USSR, or to missiles detonating in the vicinity of selected US targets. Nevertheless, it confirms our previous assumption that the Soviet leaders had explored the question of numerical requirements for ICBMs, and it indicates that Khrushchev himself speaks of 300 ICBMs as a formidable capability.⁹

Strategic Planning Factors

47. The Soviets appear to have decided, for the present and short-term future at least, to maintain a mixed long range attack force and not to rely exclusively on the ICBM for intercontinental striking power. Bomber forces capable of delivering large megatonnages are being maintained, and the USSR is acquiring submarine-launched missile capabilities. The present combined striking force has certain advantages in providing greater flexibility in Soviet tactics and in complicating Western defensive problems. In the light of these advantages, we consider it probable that the USSR will for the foreseeable future retain

⁹ According to information recently received through clandestine channels which have provided reliable military information in the past, several senior Soviet officers associated with missile activity have commented on the ICBM program along the following lines: The Soviets are spending "millions" of rubles on the program. If one success is achieved, it is magnified to support a pretense that the USSR has "hundreds" of ICBMs, in order to impress the West. The implication that there are hundreds is only "idle talk" at present, but such a force will be achieved since the USSR's economy and policy are "geared" for developing such a force.

other intercontinental weapon systems to supplement their ICBM forces.

48. In planning the present and future size of their ICBM force, the Soviet leaders have to weigh the advantages of an ICBM weapon system as compared with bombers, missile launching submarines, and other advanced weapon systems. They have to consider the superior capabilities of the ICBM for launching a large-scale attack, in particular its suitability for surprise attack on US strategic bomber bases, fixed missile sites, communication centers, and other fixed installations related to the US retaliatory capability. They have to weigh these advantages against such considerations as the ability of the heavy bomber to deliver very heavy megatonnages against difficult targets and targets of uncertain location, and the ability of the missile submarine to survive an initial Western strike and deliver a subsequent retaliatory attack. Finally, they have to consider the entire target system which their planners have developed for attacking the US under the whole range of possible circumstances, and determine what role ought to be allocated to the ICBM.

49. As our own approach to an appreciation of the military capabilities that the Soviets might expect to achieve by building up their operational ICBM capabilities, we have computed the number of ICBM launchers the Soviets would theoretically require for a single salvo designed to inflict severe damage on various US targets. We have considered the following target systems: fixed bomber and missile bases of the US nuclear striking forces; command centers associated with control and communications for these and other elements of US military strength; air defense bases whose reduction by missile attack would improve the chances of successful Soviet bomber missions; urban areas containing a large proportion of US industry, population, and other resources of national strength. We believe these are the sorts of target systems the Soviets would have considered in evaluating their own ICBM requirements for potential use in a broad variety of circumstances and kinds of attack.

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50. Theoretical computations of this sort are extremely sensitive to varying assumptions regarding the Soviet view of the precise targets worth attacking, the necessary or desirable amounts of damage to be inflicted, and the degree of assurance of inflicting such damage to be sought. We have had to use US criteria for these factors. Such computations are also sensitive to variations in the accuracy and reliability of the Soviet ICBM system, about which there is a margin of uncertainty in our estimates. In addition, computations involving an assumed attack against fast-reaction retaliatory systems (i.e., the bomber and missile bases) apply only to hypothetical circumstances in which the Soviet force has achieved near-perfect surprise and simultaneity of attack. The Soviets are capable of making more valid computations about their own weapon system than we, but they too must be cautious about assessing in advance the results of the first ICBM salvo in human history.

51. While computations of theoretical numerical requirements do not provide any firm basis for estimating Soviet ICBM force goals, they do provide a sense of proportion with respect to the suitability of current and improved Soviet ICBMs for attacking various target systems. In very general terms, we find that Soviet ICBMs are well suited to attacking cities and relatively unprotected military targets, including air and naval bases, soft and semihardened ICBM sites, and soft and semihardened command centers. Even with the improved performance projected for 1963-1965, however, Soviet ICBMs do not appear to be well suited to attacking an ICBM force deployed in very hard sites.

52. Applying these same computations to various hypothetical Soviet force levels, we find—though with considerably less certainty—that under favorable circumstances from their point of view, Soviet planners might expect to achieve the following theoretical capabilities in a single ICBM salvo:

a. With roughly 50 launchers in 1961 or any time thereafter, high assurance of being able

to detonate an ICBM warhead over each of the 25 principal US metropolitan areas.

b. With roughly 100 launchers, moderate assurance in 1961 and increasing assurance thereafter of being able to inflict severe damage on the operational air bases of the US Strategic Air Command (SAC).

c. With roughly 200 launchers in 1961-1962, moderate assurance of being able to inflict severe damage on SAC air bases and on soft and semihardened ICBM sites as well.

d. With roughly 300 to 500 launchers in 1962-1963, moderate to high assurance of being able to inflict severe damage, not only on SAC air bases and soft and semihardened ICBM sites, but also on other fixed soft and semihardened targets associated with US striking and defensive capabilities.

53. As the period advances, the Soviets could expect to achieve higher levels of assurance against the foregoing types of targets with fewer missiles, because Soviet ICBM performance will probably improve while the number of such targets will remain relatively unchanged. For example, in 1964-1965 and possibly as early as 1963, the capabilities described in *d* above might be achieved with as few as 200-400 launchers. However, studies show that several thousand ICBM launchers would be required to provide the Soviets with reasonable assurance of an ability to engage in counterbattery fire against the combined total of hard ICBM sites planned by the US for the period beginning in 1963.

54. In evaluating the significance of various hypothetical numbers of ICBMs, Soviet planners would take into account the likelihood that, for at least the next few years, the great preponderance of US megatonnage would be bomber-borne. They would almost certainly seek an ICBM force large enough to blunt or at least disrupt the US bomber capability before launch so that their air defenses would have a reasonable chance of preventing large-scale penetrations to Soviet target areas. However, they would also know that the US is rapidly acquiring significant capabilities with mobile and hardened missile forces, and

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that even at present the SAC airborne alert and dispersal capability tends to offset a Soviet ability to destroy air bases. Thus, the advance in US techniques for the protection and security of its own striking forces obliges the Soviets to recognize that—even should they build a very large ICBM force—they are confronted with a growing segment of US retaliatory power which could not be eliminated in a first strike by ICBMs, even under the most favorable circumstances.

55. The foregoing considerations do not, in themselves, define any particular ICBM force levels which the Soviets think appropriate to their needs. They do, however, support a judgment that the USSR has strong incentives to build up a substantial ICBM force, and that, at least for present planning purposes, the Soviets would probably look upon several hundred operational ICBM launchers as a substantial force.

Effects of Technological Change

56. The Soviets probably desire an ICBM force with a high salvo capability and high survivability, in order to have a capability either to launch an initial attack or to retaliate against a Western attack. The former can be approached by maintaining a high ratio of launchers to missiles, although this will not fully overcome the problems of fueling and missile hold-times inherent in the present Soviet ICBM system. The latter can best be achieved for the present system by dispersing and concealing operational launchers. Even with their very tight security practices, however, the Soviets probably view the protection afforded by concealment and dispersal as susceptible to deterioration with time, especially in view of the reconnaissance satellite capabilities they would expect the US to achieve in the next few years.

57. Many of the developments referred to in our other estimates, especially the missile advances projected in NIE 11-5-61, point to the period beginning around 1963 or 1964 as a time of major technological change in Soviet weapon systems. Principal among the advances which we can now foresee are initial

operational capabilities with a new ICBM system, in about 1963 or after, and at least limited deployment of an antimissile system designed for use against IRBMs and ICBMs, in the period 1963-1966. There is a possibility that test firings of a new ICBM have already begun at Tyuratam. Intensive R&D in antimissile defenses has been under way in the USSR for several years.

58. The new ICBM system will probably be designed to overcome disadvantages in the present system. It will probably use either storable liquid or solid fuels and include compatible elements to increase flexibility and decrease vulnerability in deployment. It will probably be easier to deploy than the present system. Moreover, at that time the oldest of the current Soviet heavy bombers will be approaching 10 years in operational service. Although the USSR has developed air-to-surface missiles for heavy bombers and could be developing new bombers for intercontinental use to supplement its missile capabilities, there is little evidence that the Soviets have made the amount of progress necessary to avert obsolescence in this field. We estimate that by 1963 the Soviets could also achieve a submerged-launching capability with ballistic missiles in nuclear powered submarines. In the same time period, the USSR could also have a long range, ground-launched unmanned aerodynamic vehicle for reconnaissance or weapon delivery. These and other developments could effectively supplement the ICBM force.

59. In 1963-1964, however, US forces will begin to include numerous hard ICBM sites. We cannot exclude the possibility that a new Soviet ICBM could achieve accuracies and reliabilities excellent enough to permit the USSR to contemplate counterbattery fire, but it is extremely unlikely that such improved performance could be attained before late in the decade. Even so, the fast reaction times of US systems and increasing US strength in mobile missiles would probably preclude effective counterbattery fire. The Soviets would probably decide that, in these circumstances, it would be desirable to adopt

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additional measures such as hardening for the protection of their own ICBM forces, and also to develop more advanced offensive techniques. Moreover, they would probably regard the achievement of effective antimissile defenses as an important element in solving their problem.

60. The potential effectiveness of Soviet antimissile defenses will therefore be an extremely significant factor in their ICBM programming. Their antimissile R&D is receiving very heavy emphasis, but we do not know with any certainty when in the 1963-1966 period they will first deploy antimissile defenses, nor do we know how effective the initial capability will be. If the initial system has only a limited, interim capability, its significance would be primarily political and psychological. However, if the Soviets conclude that their antimissile system could provide reasonable assurance of coping with some substantial portion of the Western ballistic missile capability, they would be strongly motivated to commit extensive resources to its deployment, even, we believe, to the extent of diverting resources which would otherwise be allocated to offensive systems. This conclusion rests partly on the high priority accorded to military defense in the USSR over the years, but also on our belief that in Soviet eyes the early deployment of antimissile defenses would constitute a major technological victory over the US.

PROBABLE RANGE OF SOVIET FORCE LEVELS¹⁰

61. In this concluding section of the Annex we present an estimate of probable current and future Soviet ICBM strength, based on the several interpretations we believe can validly be drawn from the evidence and from an ap-

¹⁰The Director of Intelligence and Research, Department of State, the Assistant Chief of Staff for Intelligence, Department of the Army, the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, and the Assistant Chief of Staff, Intelligence, USAF, do not concur in the range of current and future ICBM force levels estimated herein. For their positions, see their statements beginning respectively at paragraphs 69, 77, and 81.

preciation of our own ability to acquire such evidence. We again emphasize that the direct evidence is insufficient to establish with certainty the scale and pace of the present Soviet ICBM deployment program. Our estimate therefore also rests on the indirect evidence and other considerations discussed in preceding sections, including the strategic ideas which we believe govern Soviet military policy, the approximate levels of ICBM strength which the Soviet leadership appears to be seeking, our general knowledge of Soviet military programming practices, and our sense of the tempo at which the present program is being conducted. For these reasons, our estimates of current and future Soviet ICBM capabilities are expressed as ranges.

62. From the direct and indirect evidence at hand, we judge that the USSR is building toward several hundred operational ICBM launchers, to be acquired as soon as practicable within the next few years. The commitment of resources is probably quite large, but thus far the programming has apparently been deliberate in pace. It is probably affected by a desire for efficiency in scheduling the construction and activation of a number of launching complexes dispersed over a wide geographic area. The production of missiles and training of troops could be scheduled to fit into whatever site activation schedule was deemed practicable.

63. In order to achieve such a goal, a continuing and well-coordinated program of launcher activation would be required over a period of several years. In determining the activation rates which the USSR could achieve after a buildup of a year or two, we have taken into account the grouping of several pairs of launchers into complexes, the tasks and problems involved in the preparation of these complexes, and the time required to construct and activate them. We believe that launcher activation rates of 50 to 100 per year would be consistent with the sense of the current tempo of the ICBM program which we have derived from the direct and indirect evidence avail-

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able.¹¹ Because it is impossible to pinpoint the threshold of activity which our intelligence collection resources would detect, we cannot exclude a present rate somewhat higher than 100 per year.

64. Since it would require 18 to 24 months for launching complexes to be brought to operational readiness, our judgment regarding present activation rates bears most directly on ICBM deployment at present and through the next year or two. Such activation rates are not likely to remain constant; they are likely to vary considerably within this approximate range from year to year, depending on the configuration of the ICBM sites and areas of their deployment. Although we believe that the Soviets have substantially passed through the learning period of the activation program, as they gain additional experience it will be easier for them to increase the rate. At the same time, other considerations such as a new ICBM, developments in their antimissile program, and alternative uses of the resources involved will influence their decisions as to the rate of ICBM activation. Taking these factors into account, we believe it reasonable to project an average launcher activation rate of approximately 50 to 100 per year during the period to 1963-1964.

Force Levels in Mid-1961

65. We believe that the probable Soviet force level in mid-1961 is in the range of 50-100 operational ICBM launchers, together with the necessary operational missile inventories and trained crews. This would probably involve the present existent of 10 to 15 operational ICBM site-complexes. This estimate should be regarded as a general approximation. The major bases for it are our sense

¹¹ The Assistant Chief of Staff for Intelligence, Department of the Army, and the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, do not concur that a launcher activation rate of 50 to 100 a year can be supported "by the sense of the current tempo of the ICBM program." They would, in the light of the direct and indirect evidence available, be able to say only that such a launcher activation rate is within Soviet gross capabilities.

of the tempo of the program and our judgment as to the relationship between what our evidence supports and what our coverage is likely to have missed. Such a force level could have been acquired through either the smooth or phased deployment programs which can be derived from interpretation of the test range data.

Force Levels to 1963-1964

66. While deployment to date has probably been deliberate in scale and pace, we believe that the USSR is now building a substantial ICBM capability. Soviet planning for the next few years probably anticipates the advent in about 1963 or after of a new ICBM system, and deployment of the present system will probably taper off and then cease as a buildup with the new system begins. This transition might affect the overall rate at which deployment occurs; for example, the Soviets might decrease this rate for the present system before the new one comes in, and then accelerate it thereafter when the new system becomes ready for deployment. Over the next few years, however, we believe that the launcher activation rate will probably average some 50-100 per year, which would result in force levels about as follows: 100-200 operational launchers in mid-1962, 150-300 in mid-1963, and 200-400 in mid-1964.¹²

¹² The inventory of operational missiles associated with these numbers of launchers would of course be higher, and the cumulative production total higher still. We have little evidence on the relationships actually obtaining in the Soviet program. In general, however, we believe that the following assumptions are reasonable: (a) to achieve a high salvo capability, to simplify maintenance and logistics, and to have a modest reserve of missiles for possible subsequent use, the Soviet *operational ICBM inventory* would include some three missiles for each pair of operational launchers; (b) the operational ICBM inventory would also include missiles allocated to operational units but not yet integrated into the complete weapon system at deployment sites, in a pipeline equivalent to about two months' production; (c) the cumulative total of *production missiles* would be about 50 percent larger than that required for the foregoing operational purposes, with the remaining production missiles allocated to such purposes as R&D, training, static testing, space program, etc.

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67. Soviet planning for this period probably anticipates the attainment in about 1963 or after of a new ICBM system which will permit greater flexibility and less vulnerability in deployment. Deployment of the present system will probably taper off and then cease as a buildup with the new system begins. Some launchers for the new ICBM system may be operational in mid-1963, and 100 or more may be operational a year later. If so, deployment rates for the present system would almost certainly have begun to phase down before 1963. We therefore consider that 200-400 operational launchers remains the best present estimate of the Soviet force in mid-1964.

Trends in 1965-1966

68. The deployment program for this period may be significantly affected by such developments as US acquisition of numerous hardened and mobile missiles and other improved capabilities, and by Soviet development of antimissile defenses. Soviet ICBM force goals for 1965-1966 could be enlarged considerably over the 1964 level in view of these anticipated developments. On the other hand, these anticipated changes in the attack-defense relationship may appear to the Soviet leaders to warrant no increase in force goals or, more likely, only a moderate increase. We are unable to predict what the Soviet judgment will be regarding the interplay of these military factors, and there is a good chance that the Soviet leaders themselves have not yet come to a definite decision.

POSITION ON THE ICBM PROGRAM OF THE DIRECTOR OF INTELLIGENCE AND RESEARCH, DEPARTMENT OF STATE

69. The Director of Intelligence and Research, Department of State, does not concur in this estimate. He believes (a) that NIE 11-8-61 should include an estimate of the largest ICBM force which the USSR *could have* in mid-1961 and that such a force could be as large as 200 operational launchers, and (b) that the *probable* Soviet force level in mid-1961 is in the range of 75-125 operational

launchers and will increase to 150-300 in mid-1962 and to 200-450 in mid-1963.

70. *Possible force levels.* In his opinion, an NIE on Soviet long range attack capabilities should provide policymakers with an estimate of the largest ICBM force which the USSR could have deployed to date, based on an IOC of 1 January 1960 and assuming a vigorous deployment program. He regards such an estimate of the *possible* mid-1961 force level as just as important as the estimate of the *probable* current force level. Indeed, by making no explicit judgment about the *possible* current force level, the Estimate renders a disservice to the policymaker by encouraging him to consider only force levels within the probable range and, at the same time, advising him (paragraph 42) that "the USSR has a greater capacity to produce and deploy ICBMs than we believe it has exercised." The policymaker would not know, on the basis of the NIE, whether he can exclude all force levels for mid-1961 beyond those slightly above the probable range or whether he cannot exclude a force level substantially higher than the probable range. Yet it is precisely this *possible* Soviet ICBM strength which he needs to take into account in making decisions bearing directly on US national security.

71. The Director of Intelligence and Research, Department of State, realizes that an estimate of possible Soviet strength in any weapon system is less essential when there is sufficient evidence to narrow the range of our quantitative judgments. However, in the case of the ICBM, the available evidence is not sufficient to establish current Soviet strength within reasonably narrow limits. The NIE discussion and annexes acknowledge that the evidence relating to ICBM deployment can be interpreted in a variety of ways, that there are many uncertainties in the analyses of such factors as Soviet force goals and programming decisions, and that vast areas of the USSR are not covered or only poorly covered by US collection efforts. Under such circumstances, it is essential to estimate the highest force level that can be reconciled with the evidence and thereby indicate the range of possibilities which cannot be excluded.

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72. The view of the Director of Intelligence and Research, Department of State, is that the USSR could have as many as 200 operational launchers in mid-1961. He emphasizes that an ICBM force of this size is definitely less likely than one half as large, but he believes that the chances are sufficiently good to include this estimate of *possible* current strength in an NIE on Soviet long range attack capabilities. By the same token, he would exclude mid-1961 force levels exceeding 200 operational launchers. He bases his estimate on the following considerations:

a. The available evidence on the Soviet ICBM development program can be interpreted to allow for a steady buildup of operational sites concurrent with ICBM testing activities. While the inferred tempo of the Soviet program suggests that the *probable* size of the mid-1961 ICBM force is substantially less than 200 operational launchers, it does not preclude a *possible* force level of about 200 launchers.

b. Missile production is not a limiting factor. Site activation rates in excess of 100 launchers per year are within Soviet technical and economic capabilities. In order to have 200 operational launchers by mid-1961, it is not necessary to begin construction of operational sites for the 5,000 n.m. missile before late 1957 or construction of sites with more simplified launch pads before early 1960. Moreover, construction times need not be shorter than 18-24 months and site activation rates in excess of 100 launchers per year do not have to be achieved in less than the time allowed for the initial buildup period. In short, a deployment program resulting in 200 operational launchers in mid-1961 can be carried out within the limits set by the factors judged to be most critical.

c. Because of the limitations of our intelligence coverage, together with the high degree of Soviet security, substantial ICBM deployment could have occurred without being detected by US collection efforts. In any case, the chances of detecting Soviet deployment activity depend on the number of sites under

construction or completed. There is sufficient uncertainty in the number of launchers per site to allow for a considerable increase in aggregate ICBM strength without a corresponding increase in the number of sites.

d. On the other hand, it is very unlikely that construction of the first operational sites began before initiation of test firing or that high rates of site activation were achieved early in the deployment program. A rate of site construction in excess of that required to reach a force level of about 200 launchers in mid-1961 probably would have created severe organizational problems and possibly would have strained Soviet resources. Consequently, an ICBM force of about 200 operational launchers is believed to be the maximum practicable level which the USSR could have achieved by mid-1961.

73. During the next year or so the USSR could increase its ICBM force much more rapidly than in the past, since more simplified launch pads would be constructed at new sites. With several years experience behind them, the Soviets could achieve an activation rate of about 200 launchers per year by early 1962 and an operational force of roughly 400 ICBMs might be deployed by mid-1962. Thereafter deployment could be accelerated if Soviet planners decide on a high ICBM force goal.

74. *Probable force levels.* The Director of Intelligence and Research, Department of State, believes that the *probable* size of the current Soviet ICBM force is in the 75-125 range and that this force is likely to be 150-300 operational launchers in mid-1962 and 200-450 in mid-1963. The higher figures for current strength reflect his judgment that the pace of the Soviet ICBM program is in fact more rapid than the NIE implies; the higher figures for future strength are based on his judgment that a site activation rate of 150-175 launchers per year should be used in projecting the upper limit of the *probable* program. Underlying both judgments is his

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estimate that Soviet leaders seek to acquire a force of several hundred operational ICBM launchers before the US has a large number of hardened sites and mobile long range missiles. The Soviet deployment program, consequently, is likely to be pursued at a fairly rapid pace in the next year or two.

75. It is recognized that the additional ICBMs estimated for mid-1961 would not materially increase current Soviet long range attack capabilities. However, a force of about 300 ICBMs around mid-1962 would enable the USSR to bring all SAC operational air bases and soft ICBM sites under attack by missiles alone or, alternatively, to have moderate assurance of inflicting severe damage to command-control centers, air defense bases, and missile-launching submarine bases, as well as SAC operational installations. This capability would be achieved approximately one year sooner than is possible with the maximum ICBM force as estimated in the NIE text. In particular, it would be achieved before the number of hard ICBM sites planned by the US begins to increase sharply.

76. Whether deployment thereafter will continue at a rapid rate or level off depends on such factors as Soviet success in developing a new ICBM system and antimissile defenses, their assessment of US retaliatory capabilities in the post-1963 period, and the extent to which Soviet leaders become convinced that very high ICBM force goals are necessary or desirable. If Soviet leaders decide to build toward an effective ICBM capability against large numbers of US missiles in hardened sites or to achieve a substantial ICBM retaliatory capability by the middle of the decade, then the Soviet deployment program would be accelerated. However, there is at least an equal chance that ICBM deployment will taper off sometime in 1963 since Soviet planners might consider it more advantageous to accelerate their antimissile defense program. In that case, an ICBM force of 300-500 operational launchers would be maintained in the 1964-1966 period.

POSITION ON THE ICBM PROGRAM OF THE ASSISTANT CHIEF OF STAFF FOR INTELLIGENCE, DEPARTMENT OF THE ARMY, AND THE ASSISTANT CHIEF OF NAVAL OPERATIONS (INTELLIGENCE), DEPARTMENT OF THE NAVY

77. The Assistant Chief of Staff for Intelligence, Department of the Army, and the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, have entered several specific footnotes in the body of this estimate expressing their differing opinion. The basis for these footnotes, and the only fundamental difference with judgments in the estimate, is their estimate of current force levels of Soviet operational ICBM launchers. A basic difference affecting current force levels is their judgment concerning the date when the Soviets first achieved an operational capability with deployed ICBMs. They do not believe that this occurred in January of 1960. The following factors, well supported by evidence, weigh heavily in their judgment against the Soviets having attained or even sought a deployed operational capability by that time with their existing ICBM:

a. The size of the existing Soviet ICBM (450,000-500,000 pounds and about twice the size of ATLAS), the difficulties involved in the use of nonstorable liquid fuel, and heavy dependence on a rail network are factors which combine to make launcher construction a major undertaking which they believe would have been detected by US Intelligence if any substantial program had been undertaken.

b. Despite large and representative collections of evidence, our intensive search has failed to identify even probable operational ICBM site-complexes.

c. [

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d. It has been characteristic of other Soviet missile programs that prototype or trial launch sites were constructed at the test range before or, at the latest, concurrently

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with the construction of an operational facility. Indications of construction of such a prototype site for the ICBM did not appear at the test range until 1960 and it was probably not completed until late 1960 or early 1961.

e. Recent test firings of ICBMs, in which reliability has dropped sharply []

[] suggest the introduction of redesigned system components, [] inexperienced personnel, or both.

f. []

[] analysis of which indicates that the Soviets did not have a large scale deployment effort under way before mid-1960. Considering 18 months construction time, this would indicate no large operational capability prior to late 1961. []

g. []

78. The Assistant Chief of Staff for Intelligence, Department of the Army, and the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, believe that the appearance of the probable prototype launching site, the increased pace of firings, and [] support the view that the Soviets may now be about to deploy some ICBMs of the existing cumbersome type and clearly strengthen their judgment that the Soviets did not have a deployed ICBM capability by 1 January 1960. This judgment, in turn, influences their view of the possibility of ICBM deployment in the inhospitable northwest portion of the USSR. While information is not yet firm enough to rule out the possibility of ICBM deployment at Plesetsk and Polyarnyy Ural, as well as at two other locations, they believe it unlikely that sites for ICBMs of the type described above were constructed in those areas in the time period 1957-1959, which would have re-

quired site design and decision to deploy prior to the first Soviet firing of an ICBM.

79. The Assistant Chief of Staff for Intelligence, Department of the Army and the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, believe that the evidence available on the Soviet ICBM development program is sufficiently complete and valid to support the conclusion that little, if any, ICBM deployment has occurred, and that the near absence of evidence of deployment strengthens that conclusion.

80. On the basis of all the evidence and the reasoning outlined above, the Assistant Chief of Staff for Intelligence, Department of the Army, and the Assistant Chief of Naval Operations (Intelligence), Department of the Navy, estimate "a few" operational Soviet ICBM launchers for mid-1961. Although they do not consider the evidence sufficient to project a precise estimate of the Soviet planning for future ICBM strength, they accept the reasoning in the text as a generally valid measure of the scale and pace of a build-up. Therefore, on the basis of making a prudent and reasonable projection of Soviet deployed ICBM launcher strength they estimate as follows:

Mid-1962	50-100
Mid-1963	100-200
Mid-1964	150-300

POSITION ON THE ICBM PROGRAM OF THE ASSISTANT CHIEF OF STAFF, INTELLIGENCE, USAF

81. The Assistant Chief of Staff, Intelligence, USAF, does not concur with the judgments reached herein on the nature of the current and future Soviet force goals or the strategic considerations which determine their magnitude. In his view the estimate of current force levels does not accurately represent the scope of deployment indicated by the nature and quality of the evidence thus far accumulated, but reflects instead the impact of the extreme security measures which have obscured the broad scope of the Soviet ICBM program from its inception. In addition, he believes that proper allowance has not been made in the estimate for the lack of intelli-

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gence coverage of the many areas in the USSR in which ICBM deployment may have been carried out.

82. The Assistant Chief of Staff, Intelligence, USAF, believes that the Soviet determination to achieve world domination has fostered recognition of the fact that the ultimate elimination of the US, as the chief obstacle to the achievement of their objective, cannot be accomplished without a clear preponderance of military capability. Moreover, Soviet doctrine and deeds suggest to him that the Soviet hierarchy are mindful of the fact that few, if any, lasting major political victories in history have been achieved without the supporting bulwark of superior military power.

83. The history of their ballistic missile program testifies to an early recognition by the Soviets of the unprecedented potential offered by such weapons and reflects their determination to exploit that potential by making ballistic missiles the dominant system in their strategic strike force. Their highly successful ICBM testing record reflects the qualitative achievement of their well-planned, well-organized program which would facilitate the realization of predetermined force goals of any reasonable magnitude. Soviet efforts to mask their program in secrecy indicate the importance which they attach to their growing missile capability. Moreover, evidence developed in spite of their security measures reveals programming for [] deployment concurrent with the testing phase of their program. This concurrency is a further indication of Soviet determination to maximize their operational capability at the earliest practicable time. In this connection, the evidence on deployment is consistent with the estimate that the Soviets achieved their initial operational capability by 1 January 1960, and in the intervening period of a year

and a half, to mid-1961, brought to operational readiness at least 120 and possibly an even greater number of operational ICBM launchers.

84. Considering the emphasis which the Soviets place on secrecy, and the absence of other than partial intelligence coverage on most of the areas most suitable for ICBM deployment, we could not expect to identify more than a small portion of the Soviet ICBM deployment program. Nevertheless the Assistant Chief of Staff, Intelligence, USAF, has identified at least six areas on which there is reasonably good evidence of ICBM deployment. Within these areas he believes there are between 10 and 15 operational ICBM site-complexes. Further, he has about 20 additional areas under active consideration on which evidence indicates the possibility of ICBM launch site construction. Considering the economics of logistic support and specialized maintenance and control problems, the siting of several site complexes in a deployment area is highly probable and should be expected. Therefore, deployment—whether actual or planned—represented by the 20 additional areas—reflects the existence of a program of considerable magnitude. Even though identification of some of the suspect areas should later prove erroneous, undoubtedly others will be identified to replace them as the delay in intelligence reporting catches up with the actual situation.

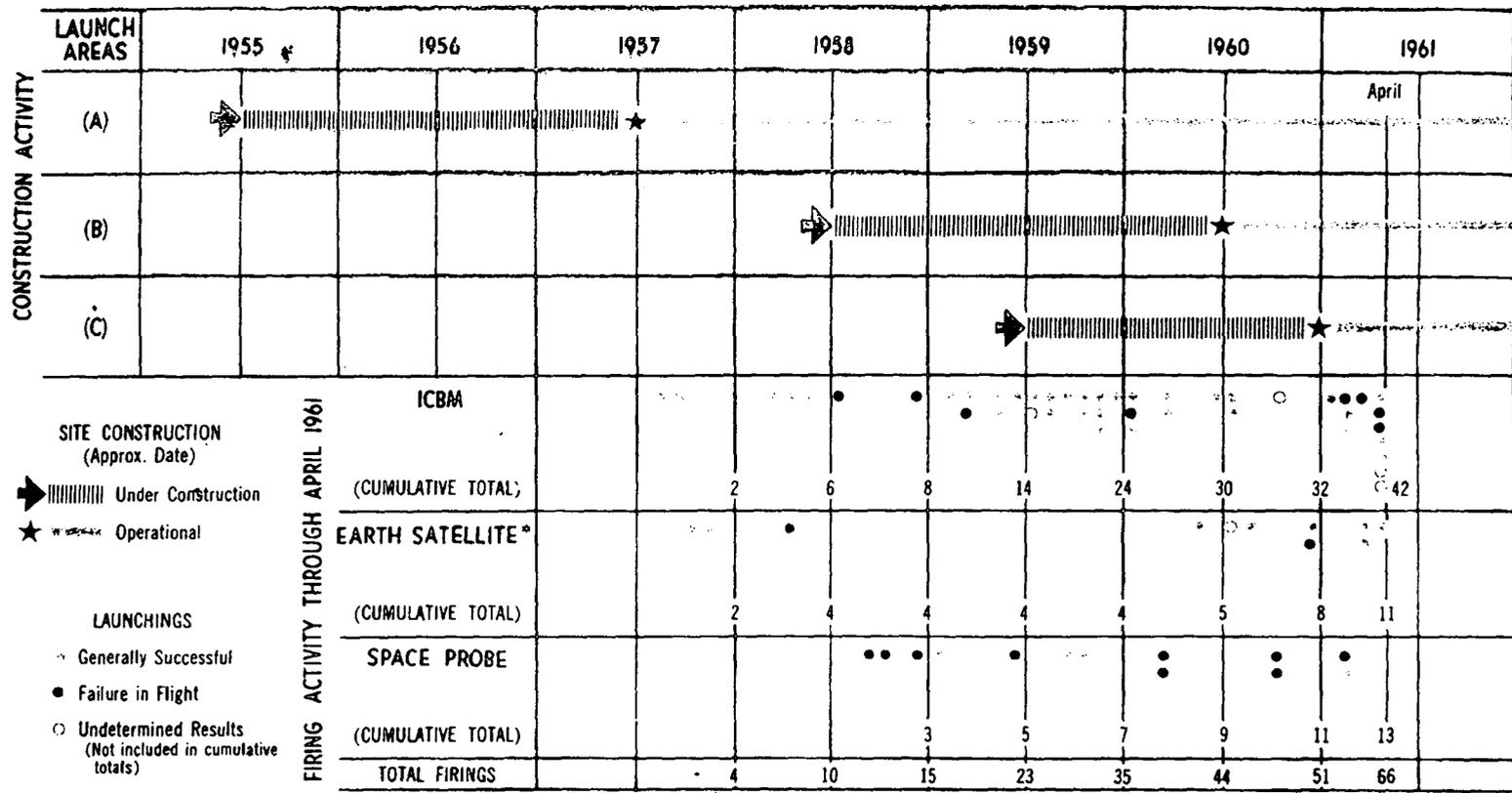
85. In view of the above, the Assistant Chief of Staff, Intelligence, USAF, estimates the operational ICBM launcher availability as follows:

Mid-1961	at least	120
Mid-1962		300
Mid-1963		550
Mid-1964		850
Mid-1965		1,150
Mid-1966		1,450

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SOVIET ICBM TEST RANGE ACTIVITIES—TYURATAM USSR



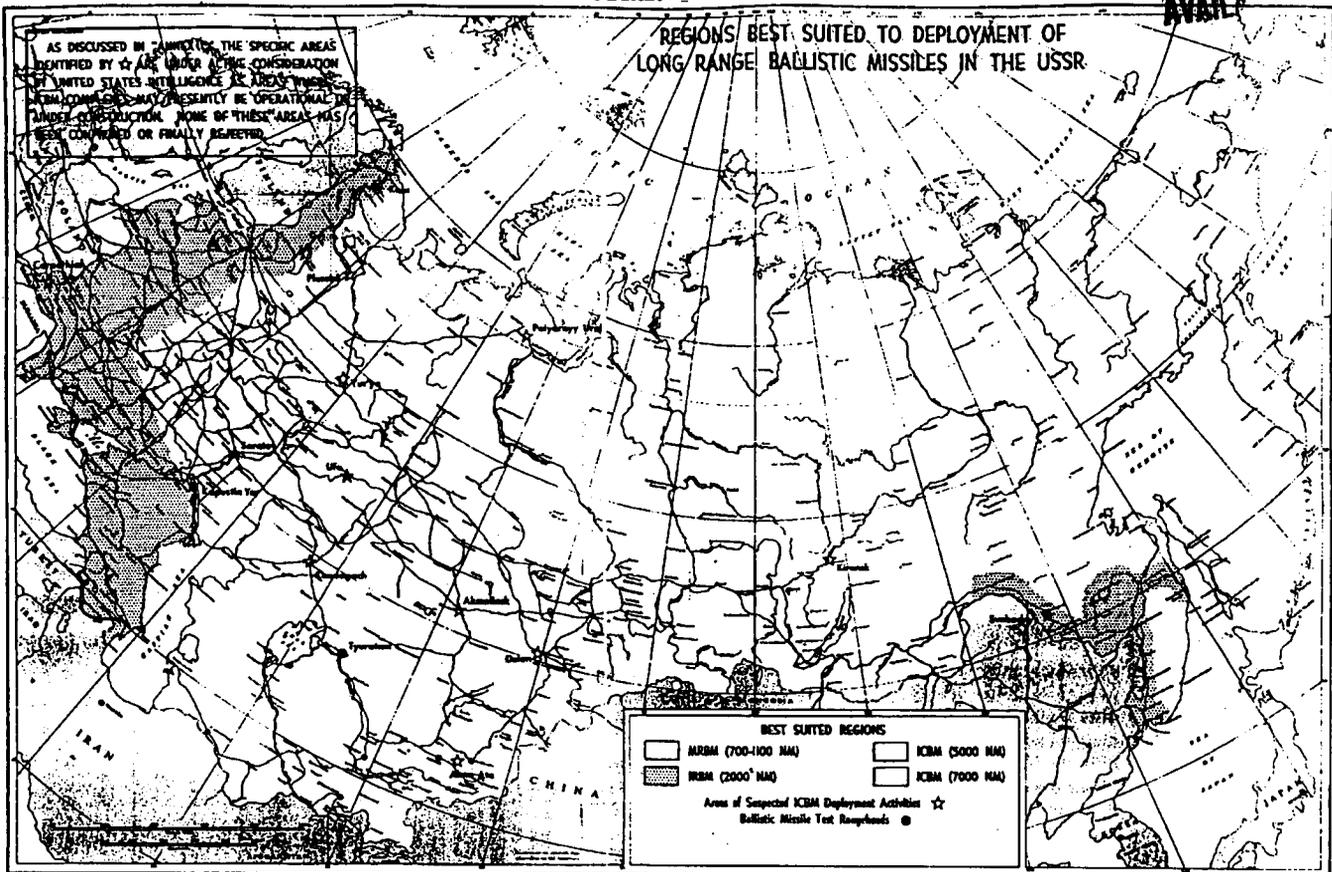
* Two additional earth satellites have been successfully orbited. They are included under SPACE PROBE, however, since their missions were to launch planetary probes.

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REGIONS BEST SUITED TO DEPLOYMENT OF LONG RANGE BALLISTIC MISSILES IN THE USSR

AS DISCUSSED IN ANNEX 1, THE SPECIFIC AREAS IDENTIFIED BY USIA UNDER THE CONSIDERATION OF UNITED STATES INTELLIGENCE AS AREAS WHERE ICBM COMPLEXES MAY PRESENTLY BE OPERATIONAL OR UNDER CONSTRUCTION. NONE OF THESE AREAS HAS BEEN CONFIRMED OR FINALLY REJECTED.



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