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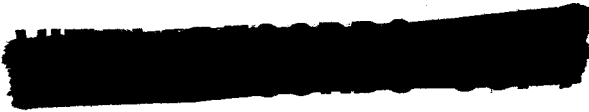
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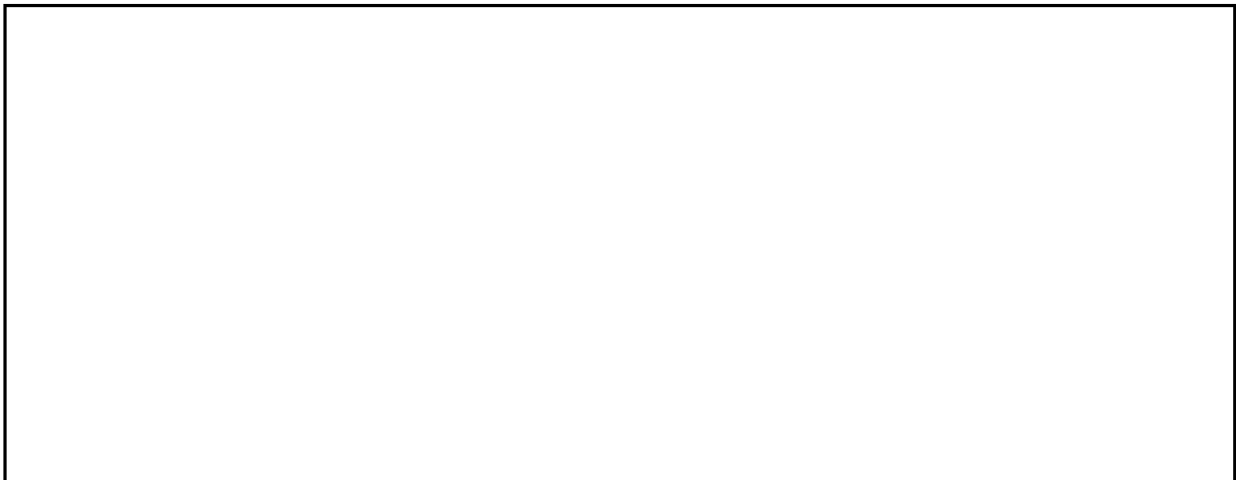
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March 1966



**EVALUATIONS OF SOVIET
SURFACE-TO-SURFACE
MISSILE DEPLOYMENT
22ND REVISION**

**A Report of the Deployment Working Group
of the
Guided Missile and Astronautics Intelligence Committee**



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EVALUATIONS OF SOVIET
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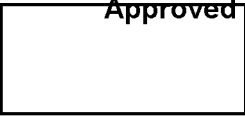
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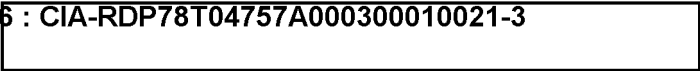
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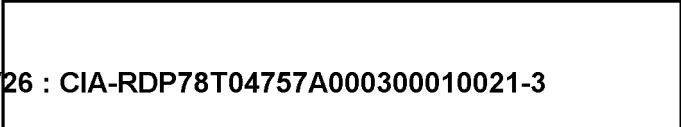


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The Guided Missile and Astronautics Intelligence Committee (GMAIC) wishes to express its appreciation to the National Photographic Interpretation Center for its assistance in the editing, illustration, and publication of this report.

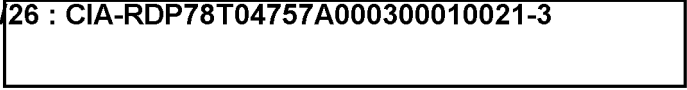
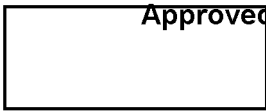
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DEPLOYMENT WORKING GROUP

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Photographic Interpreter support is provided by the Photographic Analysis Group, NPIC.

NOTE: All correspondence relative to this report should be directed to the Chairman, Guided Missile and Astronautics Intelligence Committee (GMAIC).

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PREFACE

This report, published bimonthly by the GMAIC Deployment Working Group (DWG), provides a comprehensive, ready-reference listing of all ICBM, IRBM, and MRBM deployment locations, types of site configurations, photographic references, estimated construction and operational status, and other evaluations by the DWG. These data constitute the majority view of the DWG membership, and may not correspond precisely to individual assessments by each member. Additional data may be added to future revisions.

Dissemination of the report was previously limited to holders of the DWG report, Soviet Surface-to-Surface Missile Deployment. Because the information contained herein is both supplemental and self-sustaining, distribution will no longer be limited to holders of the above report.

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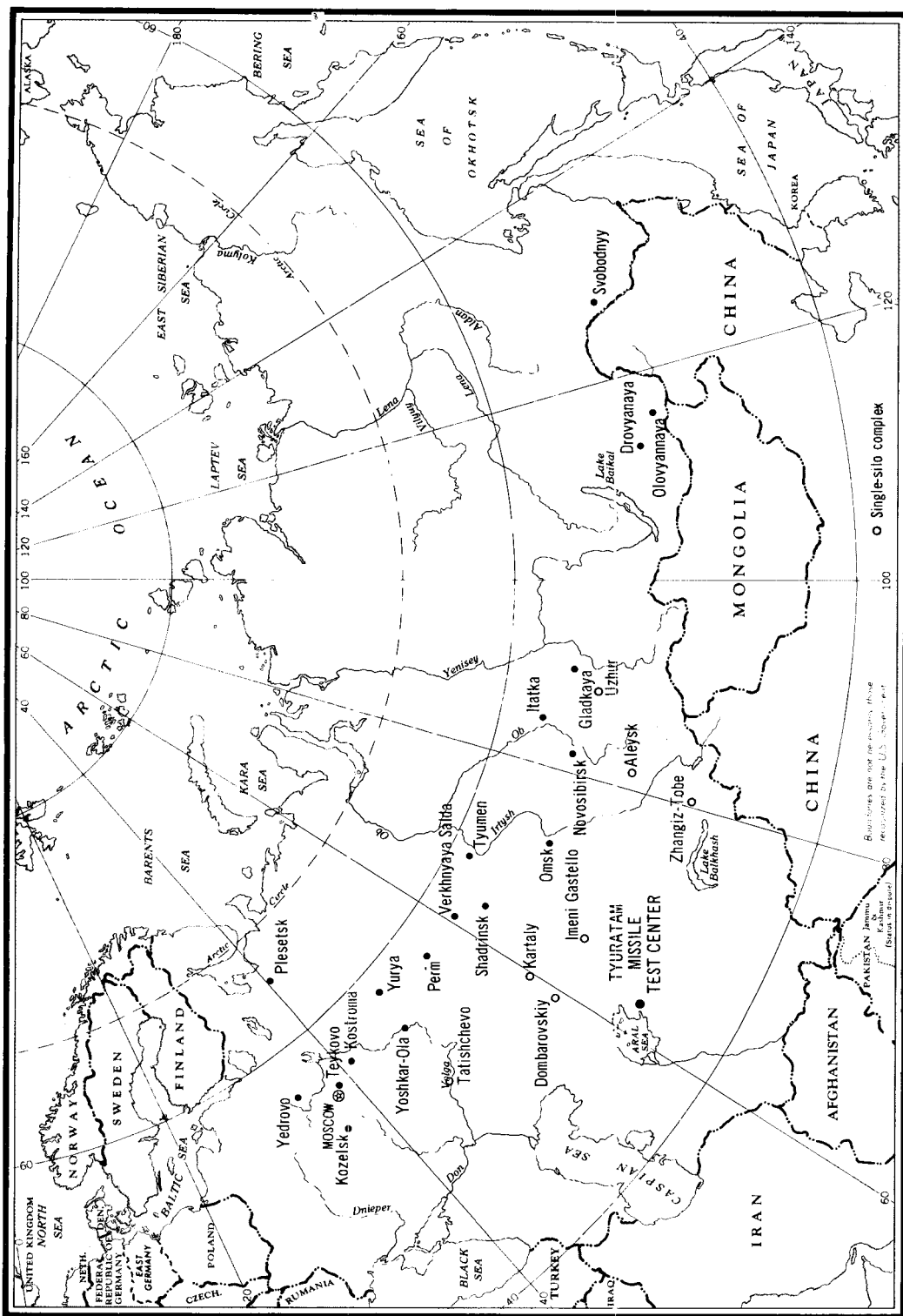


FIGURE 1. DEPLOYMENT OF SOVIET ICBM COMPLEXES.

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INTRODUCTION

This report is the 22nd Revision of Evaluations of Soviet Surface-to-Surface Missile Deployment prepared by the Deployment Working Group (DWG) of the Guided Missile and Astronautics Intelligence Committee (GMAIC). The information contained in this and previous revisions is self-sustaining and supplements the basic DWG report Soviet Surface-to-Surface Missile Deployment which provides detailed information on individual launch facilities of the Soviet Strategic Rocket Forces. The basic report, dated 1 January 1962 (Control Number [redacted]) has been revised and updated on a periodic basis. Further updating is accomplished in reports prepared and published for GMAIC by the National Photographic Interpretation Center (NPIC).

Recipients of this report are advised that the bimonthly revision scheduled for January 1966 was not published. This 22nd Revision covers the period from 25 October 1965 to 1 March 1966. [redacted]

[redacted]

previous missions and other sources have provided additional information on the Soviet strategic missile deployment program. The new data are reflected in Tables 1 through 9. Technical characteristics of Soviet ICBM, IRBM, and MRBM systems currently operational or under development are given in Table 10. Cut-off date for information in this report is 1 March 1966.

SOVIET ICBM DEPLOYMENT

Significant developments in the Soviet ICBM deployment program since the publication of our 21st Revision include the identification of additional single silos under construction at the deployed complexes and at the Tyuratam Missile Test Center; the apparent completion and approaching operational status of significant numbers of Type IIC and IID single-silo sites;

[redacted]
[redacted]
and new construction activity at the Plesetsk Complex.

CURRENT DEPLOYMENT

No new ICBM complexes have been discovered since our last revision; the number identified remains at 25. See Figure 1 for locations of deployed ICBM complexes. These complexes now contain a total of 444 confirmed and probable launchers, of which 150 are soft and 294 are hard. This represents an increase of 35 launchers over the number reported in our 21st Revision. Included in the hard launcher count are 216 single silos in various stages of construction. We are presently carrying 19 single-silo sites in the possible category, which are not reflected in the total launcher count.

Of the 444 confirmed and probable launchers, 250 are estimated to be operational, including 104 in a hard configuration. We believe that 44 of the 55 launchers at Tyuratam are now completed and, although not normally considered as part of the operational ICBM force, they could be used operationally. The ICBM sites have been designated by type, as shown and explained in Figure 2.

Evaluation of all evidence received since our last revision has resulted in the following ad-

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ditions or changes at the complexes indicated:

DOMBAROVSKIY, Launch Site L(13) and Possible Launch Site M(14), Type IIC, under construction

GLADKAYA, Launch Group F, Type IID, Launch Site F10(20) confirmed; Launch Group G, Type IID, Launch Site G1(16), G5(23) confirmed; Launch Group H, Type IID, Launch Sites H1(27), H2(30), H3(28), H4(26), H5(25), H8(29) newly identified as confirmed and probable, and Launch Sites H6(34), H7(33), H9(31), and H10(32) newly identified as possible launch sites

IMENI GASTELLO, Launch Sites N(14) and Possible Launch Site O(15), Type IIC, under construction

KARTALY, Launch Sites N(14) and P(13) and Possible Launch Site O(15), Type IIC, under construction

OLOVYANNAYA, Launch Sites F6(39), F7(40), F8(43), F9(44), F10(42), F11(41), H1(46), H2(47), H3(49), H4(50), H6(45), H7(51), H8(48), and Possible Launch Site H5, Type IID, under construction

PERM, Launch Sites G9(28), G15(23), G16(24), G17(22), G18(25), and Possible Launch Sites G14(20) and G19(26), Type IID, under construction

UZHUR, Launch Sites R(18) and S(19), Type IIC, under construction

ZHANGIZ-TOBE, Possible Launch Site L(12), Type IIC, under construction.

SINGLE-SILO DEPLOYMENT

General

Confirmed single-silo deployment is still limited to the 7 newer and 4 of the older complexes. The number of sites under construction at these complexes continues to grow, and it is apparent that deployment of both the Type IIC and Type IID sites is continuing.

Type IIC Sites

GENERAL

The confirmed deployment of Type IIC single-silo sites is still confined to the Aleysk, Dombarovskiy, Imeni Gastello, Kartaly, Uzhur, and Zhangiz-Tobe complexes where a total of 80 confirmed and probable, and 6 possible sites has been observed under construction. There is still no consistency in the number of sites deployed per complex, there being a high of 19 sites at the Uzhur Complex and a low of 11 sites at the Aleysk Complex. Each of the Type IIC complexes has at least 1 confirmed L-shaped electronic facility, with the control facility situated at the apex of the legs. Two such facilities have been confirmed at the Uzhur Complex. There are additional probable control facilities under construction at each of these complexes, but there is no evidence of additional L-shaped electronic facilities. It is expected that 1 such electronic facility will serve an operational grouping of Type IIC silos, but the number of silos per group is not yet clearly defined. The specific function of the L-shaped electronic facilities is as yet undetermined. They could be intended for use in a bomb-damage-assessment role or to provide a baseline interferometer as a part of a radio-assist guidance system.

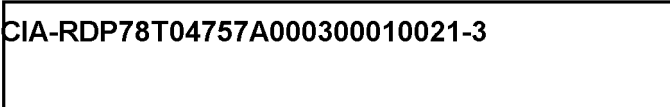
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ALEYSK COMPLEX

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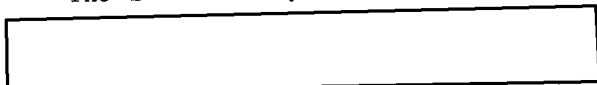


(1) was assessed as being externally complete. The loop road pattern, the silo door, and a possible piece of missile-handling equipment were clearly visible. We estimate that this site will achieve operational status in the second quarter of 1966. There were no significant developments at the other sites in the Aleysk Complex.

The facility at 52-28N 82-42E can now be confirmed as the rail-to-road transfer point for the complex. The installation is still under construction. Ten buildings appear to be complete or nearing completion. The 2 arch-roofed buildings in the center are complete and earth mounded.

DOMBAROVSKIY COMPLEX

The Dombarovskiy Complex was covered



lights of this coverage included the detection of 1 confirmed and 1 possible Type IIIC single silo, and the determination that 3 of the sites at this complex are now complete.

The confirmed new Type IIIC site is located approximately 10 nm northeast of the complex support facility, and has been designated Launch Site L(13). It is enclosed by a security fence and appears to be in an early stage of construction. The silo coring is visible, as is the U-shaped excavation that is typical of a Type IIIC single-silo site. The site support facility east of the launch site contains 2 large and 4

small buildings. The newly identified possible site has been designated Possible Launch Site M(14) and is located approximately 14.2 nm south-southwest of the complex support facility at 50-50N 59-36E. This site, which is in a very early stage of construction, was not present

The launch site consists of a secured area cleared of snow and connected by track activity to a second area containing approximately 5 small and 2 large buildings under construction. The identification of Launch Site L and Possible Launch Site M brings the total number of known Type IIIC sites at Dombarovskiy to 13 (12 confirmed and 1 possible).

permitted determination that Launch Sites A (4), B (3), and C (2) are now externally complete. No unique activity was noted at Launch Sites A and C, but at Launch Site B the entire site has a cluttered appearance. A linear object is on the access road in front of the silo structure, and construction activity continues on the L-shaped electronic facility. Additional scarring and possible ditching is visible in the vicinity of the L-shaped electronic facility, but no significant pattern can be established. We estimate that these 3 sites will become operational in the second quarter of 1966. Launch Sites D(1) and E(6) remain in a midstage of construction. At both of these sites a linear object is located on the rectangular mound on the northwest side of the silo. Launch Site G(11), previously carried as a probable site, can now be confirmed as a launch site in an early stage of construction. The site is enclosed by a double security fence and contains approximately 5 small buildings. The site support facility contains 3 large and approximately 30 small buildings. Launch Site H(10) can now be confirmed as being in an early stage of construction. The site support facility contains 3 large and approximately 18

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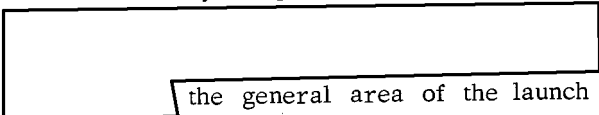


small buildings. Launch Sites I(8) and J(9), previously carried as probable, can now be confirmed and are in the midstage of construction. Launch Site K(12), previously carried as a possible site, can now be confirmed as a launch site in the midstage of construction.

Additional activity noted at Dombarovskiy includes an excavation east of the silo excavation at Launch Site J(9), possibly for the construction of an L-shaped electronic facility. If so, this would represent the second launch site at Dombarovskiy to be equipped with such a facility. Construction has also begun on 2 long rectangular buildings between the launch site and the site support facility.

KARTALY COMPLEX

The Kartaly Complex was covered by Mis-



the general area of the launch sites within the complex was covered but the launch sites were not discernible. On

3 new areas of construction were newly identified and have been designated Probable Launch Site N(14) at 53-00N 60-49E, Possible Launch Site O (15) at 52-53N 60-40E, and Probable Launch Site P(13) at 53-15N 60-24E. These sites are in an early stage of construction and can be negated on

Probable Launch Site N consists of a pentagonal fenced area of sufficient size to accommodate a typical L-shaped electronic facility. The activity observed within the fenced area is probably an excavation for a control building. A nearby ditch leads toward the complex support facility and also Launch Site A(1). Possible Launch Site O consists of ground scarring or scraping in the snow cover. Track activity leads toward the complex support facility and to Probable Launch Site N.

The total number of Type IIIC sites identified at the Kartaly Complex is now 16, of which

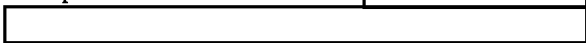
3 are being carried in the possible category. Up to this revision, only 1 L-shaped electronic facility has been identified at this complex, that being at Launch Site A(1) where the silo is now probably backfilled in a late stage of construction.

A newly identified building at Launch Site H(8), probably a control facility, is under construction within an excavation in the wooded area to the southeast of the launch silo. A site support facility containing at least 5 buildings is located southwest of the silo.

The status of construction at the other launch sites of the Kartaly Complex could not be determined from available photography, but several sites should be nearing completion.

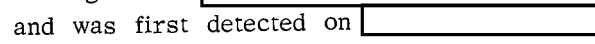
IMENI GASTELLO COMPLEX

Excellent coverage of the Imeni Gastello Complex was achieved by



The complex support facility and the rail-to-road transfer point are partially covered by fair non-stereo photography. Construction continues in both areas, and ditching and building construction are evident.

Highlight of this coverage was the discovery of 1 new confirmed and 1 new possible Type IIIC launch sites under construction. The newly identified confirmed site, designated Launch Site N(14), is located approximately 26 nm southwest of the complex support facility at 50-53N 65-35E. The site is in an early stage of construction and consists of a fenced U-shaped excavation with adjacent spoil piles. Approximately 1,500 feet northeast of the launch site are 3 small buildings which suggest the start of a site support facility. This site can be negated on



and was first detected on The newly identified possible launch site, designated Possible Launch Site

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O(15), is located approximately 31 nm southwest of the complex support facility at 50-54N 65-46E. The site, enclosed by a probable security fence, consists of earth scarring for a possible silo excavation. It was first observed on [redacted]

[redacted] and was not evident on [redacted]

The discovery of these 2 sites brings the total number of Type IIIC sites under construction at the Imeni Gastello Complex to 16, of which 1 is carried as a possible site.

We estimate that Launch Sites A(1), D(4), and E(5) will become operational sometime during the second quarter of 1966.

A newly identified probable HF communications facility containing numerous probable horizontal dipole antennas is located approximately 1.5 nm east-northeast of Launch Site K(11).

At Launch Site A(1) the silo has been backfilled and the rectangular silo door is in the open position. There is a small rectangular excavation at the terminus of a ditch leading from the vicinity of the silo. A crane is adjacent to the north side of the silo and several other vehicles or pieces of equipment are in the vicinity of the silo. A long rectangular building is located east of the silo and several small construction sheds are within the secured area. At least 13 buildings are in the support area and numerous vehicles and/or pieces of equipment are moving between the site and the support area.

Launch Site B(2) remains in a midstage of construction, with the silo appearing to be at or near the level of the earth-mounded access. The personnel entrance is under construction adjacent to the silo and the construction ramps to the silo have been removed. At least 2 cranes and 4 other vehicles are observed at the site.

Launch Site C(3) remains in a midstage of construction. The silo has not yet been brought

up to the level of the graded earth access.

Launch Site D(4) is in a late stage of construction. The silo is backfilled and the silo door is in the open position. The control building has not been completed but 1 leg of the electronic facility has been backfilled. The 2 long arch-roofed buildings outside the launch site have not yet been earth mounded.

The silo at Launch Site E(5) appears to be backfilled; however, the lack of stereo coverage, and dark shadows preclude detailed analysis.

Launch Site F(6) remains in a midstage of construction. The construction ramps extend across the silo excavation to the silo which, as yet, does not appear to be at full height.

At Launch Site G(7), which is in the midstage of construction, the silo is near ground level. The personnel entrance is under construction along the north side of the silo and a probable control building is within an excavation southwest of the silo. There are at least 18 buildings within the site support facility. A possible electronic facility can now be confirmed. It is similar to that at Launch Site D(4) and contains an oversized perimeter fence, a control building in an excavation adjacent to the silo, and a large support area containing 2 very large barracks-type buildings.

The silo at Launch Site H(8) is near ground level and compartmentation can be observed. A linear object, probably a form for constructing the cylindrical object previously observed at many Type IIIC sites, is located at an angle to and partially on the graded earth mound.

Launch Site K(11) is in a midstage of construction. The silo aperture is interrupted by a rectangular object but compartmentation of the silo is clear. The silo headwork appears to extend upward only a few feet from the base of the silo excavation but snow limits interpretation.

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At Launch Site L(12) construction of the silo headworks has started and there is an environmental cover over the aperture.

The complex support facility is divided into 5 identifiable components. The main railhead consists of a large warehouse, an E-shaped building, a steamplant, several miscellaneous buildings, and numerous areas of open storage. The secondary railhead consists of a large warehouse, a smaller warehouse, and various other buildings under construction. The motor pool consists of a secured area containing 4 small buildings and approximately 30 vehicles. A POL storage area that predates the complex, but is being used in support of the ICBM effort, consists of 3 large and 8 smaller storage tanks and 4 small buildings. The administration and housing area consists of a secured area containing a variety of major buildings and barracks-type buildings.

UZHUR COMPLEX

[redacted] Highlight of this coverage was the detection of 2 new Type IIC launch sites, designated Launch Sites R(18) and S(19). Launch Site R can be negated on [redacted]

was confirmed as a launch site in an early stage of construction on [redacted]

[redacted] It is located at 54-57N 89-40E, approximately 21 nm south of the complex support facility. [redacted]

[redacted] revealed at least 4 buildings in the support facility associated with Launch Site R. Although there were indications of progress, the stage of construction could not be determined because of the lack of visible detail in the excavation. Launch Site S(19) originally was described as an unidentified square excavation near the rail-

to-road transfer point. Activity was first noted [redacted]

Launch Site S is located approximately 2.5 nm southwest of the complex support facility, adjacent to the transfer point. Identification of these 2 launch sites brings the total count to 19 at the Uzhur Complex, making it the largest of the 6 Type IIC single-silo complexes.

The most significant development at the Uzhur Complex since our last revision is the apparent completion of several of the launch sites. As a result of [redacted] 6 of the Type IIC single silos are now considered to be "brick and mortar" complete. These are Launch Sites A(1), B(2), C(3), D(4), E(5), and F(6). The visible construction time for these sites was between 22 and 25 months, while the total time to initial operational capability could extend to 27 months. We estimate that these 6 sites will become operational during the first quarter of 1966.

At Launch Site B(2) backfilling of the control bunker at the L-shaped electronic facility has been completed. An L-shaped electronic facility is also under construction adjacent to the silo at Launch Site H(8). The legs are on either side of the silo excavation, and there is a second excavation and construction activity at the apex of the legs.

ZHANGIZ-TOBE COMPLEX

The Zhangiz-Tobe Complex was covered by [redacted]

One newly identified possible launch site under construction was detected, and Launch Site K(11) was confirmed as a Type IIC site on this coverage. The newly identified site, designated Possible Launch Site L(12), is located approximately 11 nm north-northwest of the complex support facility at 49-22N 81-05E. The site

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was first evident on [redacted] and was not present on [redacted]

[redacted] The stage of construction has not been determined, but the site consists of an excavation, track activity, and several small buildings. No security fencing is discernible. Launch Site K(11), confirmed as a Type IIIC site, consists of a square excavation with a dark object in the center and a rectangular mound on the northwest side. A few small construction buildings are in the immediate area. The site support facility is under construction approximately 2,500 feet west of the launch site.

Launch Sites A(1), B(2), and C(4) are now considered to be in the late stages of construction and nearing completion of the "brick and mortar" phase of construction. We estimate that these sites will become operational during the second quarter of 1966. At Launch Site J(10) a new square excavation is present approximately 200 feet southeast of the silo excavation. A probable L-shaped electronic facility is under construction adjacent to the launch silo. The Zhangiz-Tobe Complex now consists of 11 confirmed and 1 possible Type IIIC sites under construction.

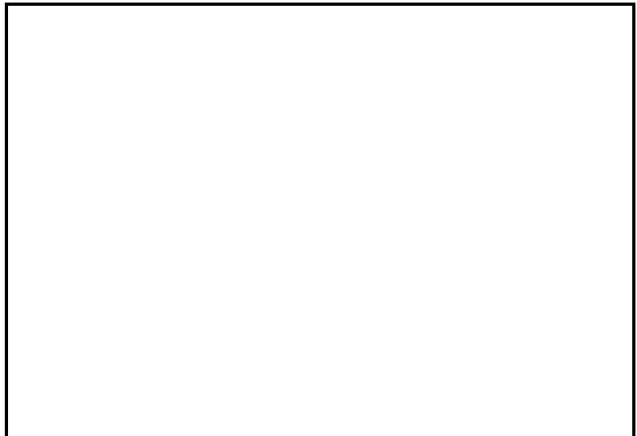
The rail-to-road transfer point, located at the northwest end of the complex support facility at 49-12N 81-09E, consists of a double-secured area with a rail siding, 9 large buildings (3 earth-mounded), and several smaller buildings. Ditching is visible close to the 2 earth-mounded buildings nearest the rail siding.

Type IIID Sites

GENERAL

We have identified a total of 136 confirmed and probable, and 13 possible Type IIID launch sites at the Drovyanaya, Gladkaya, Olovyanaya, Perm, and Tatishchevo complexes, an increase of 27 since our 21st Revision.

Succeeding paragraphs summarize developments since our last revision at complexes where deployment of Type IIID launch sites has been identified.



It has been expected that an L-shaped electronic facility would be associated with each deployed group of 10 Type IIID single silos. To date, no such facility has been identified at the Drovyanaya, Gladkaya, or Perm complexes. Should the L-shaped electronic facility not appear at these complexes, it might indicate a variation of Type IIID deployment.

DROVYANAYA COMPLEX

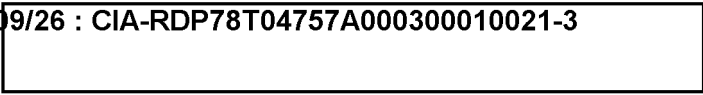
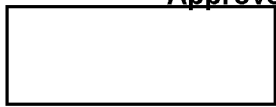
This complex was covered by fair-to-good



[redacted] No new Type IIID launch sites or groups were identified. The photography from [redacted] permitted determination that Launch Sites G1 through G9 were complete. Silo doors could be identified, and the sites had a finished appearance. The quality of the photography did not permit identification of a silo door at Launch Site G10 but it can be assumed that progress at this site is consistent with the rest of the launch sites within the group. We estimate that all the sites in Launch Group G will be operational in the first quarter of

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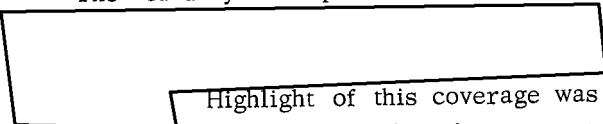
1966. As yet, no L-shaped electronic facility has been identified at Launch Site G2 (8), even though a control bunker is located there.

[redacted] covered all the sites in Launch Group H. The construction status of Launch Site H4(21) could not be determined, but the remaining 9 sites are all in the late stages of construction. We estimate that this group will become operational during the third quarter of 1966. At Launch Site H7(15), which contains a control bunker, there is still no evidence of construction of an L-shaped electronic facility.

The Drovyanaya Complex still includes only 2 launch groups with a total of 20 confirmed Type IIID launch sites; however, like the Gladkaya and Perm complexes, no L-shaped electronic facility has been detected under construction at the complex.

GLADKAYA COMPLEX

The Gladkaya Complex was covered by



Highlight of this coverage was the identification of a new launch group at Gladkaya on [redacted]. The new group, designated Launch Group H, consists of Launch Sites H1(27), H2(30), H3(28), H4(26), H5(25), H6(34), H7(33), H8(29), H9(31), and H10(32). Launch Sites H1, H5, and H8 are confirmed sites; Launch Sites H2, H4, and H8 are carried as probables; and the remaining sites in the group are carried as possibles. Identification of this new launch group raises the Type IIID site count at this complex to 27, of which 20 are confirmed and probable sites, and 7 are possible sites.

With the confirmation of Launch Site F2(8) [redacted] Launch Group F now consists of 9 confirmed and 1 probable Type IIID sites. Construction at this launch group has

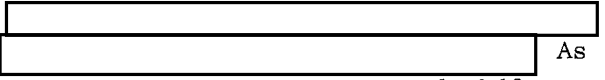
progressed at a steady pace and current indicators suggest that this group is nearing completion. We estimate that this group of 10 sites will become operational in the second quarter of 1966. Launch Site F1(7) appears to have a clean appearance and is probably "brick and mortar" complete. The square-shaped object faintly visible adjacent to the silos at F2(8) and F4(9) possibly represent silo doors.

Launch Group G now consists of 4 confirmed Type IIID sites, G1(16), G3(18), G4(21), and G5(23); and 3 possible sites, G2(17), G6(24), and G7. Unidentified ground scarring was observed 3.5 nm west-southwest of Possible Launch Site G2(17) on [redacted]

We are presently carrying a probable control facility at Launch Site F1(7) and possible control facilities at Launch Sites G5(23) and H1 (27).

OLOVYANNAYA COMPLEX

This complex was covered by [redacted]



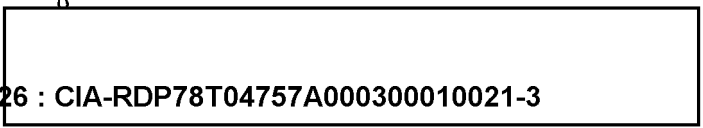
As a result of this coverage, a total of 13 confirmed and 1 possible Type IIID sites were newly identified at the Olovyanaya Complex.

Six of these new launch sites, designated F6(39), F7(40), F8(43), F9(44), F10(42), and F11(41), bring the total number of sites at Launch Group F to 11. All of these new sites, with the exception of F9(44), can be negated on [redacted] and were first covered on [redacted]

Launch Site F9(44) was negated on [redacted] and first covered on [redacted]

[redacted] All of these sites, except F11(41), were first identified as single silos on [redacted] Launch Site F11(44) was first identified as a single silo on [redacted]

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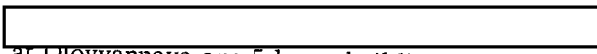
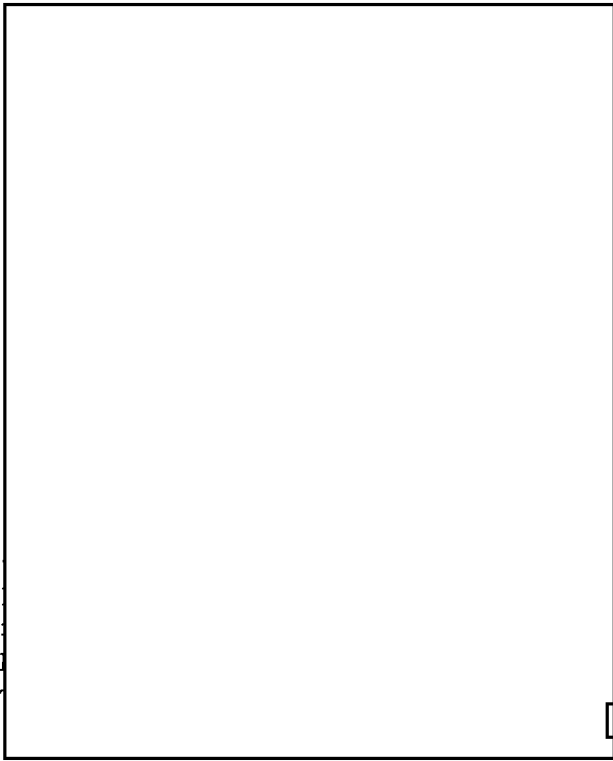
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The 8 remaining newly identified sites (7 confirmed and 1 possible) constitute a new group designated Launch Group H. The new sites are H1(46), H2(47), H3(49), H4(50), H5 (possible), H6(45), H7(51), and H8(48). All of these sites can be negated on [redacted]

[redacted] Launch Sites H1, H2, H6, H7, and H8 were first covered on [redacted] and Launch Sites H3, H4, and Possible Launch Site H5 were first covered on [redacted]. All of the sites were first identified as single silos on [redacted].

These new sites bring the total number of Type IIID single silos under construction at the Olovyannaya Complex to 48 confirmed and 1 possible. We estimate that Launch Group D (Sites D1 through D10) will become operational during the second quarter of 1966, and Launch Group E (Sites E1 through E10) will become operational in the third quarter of 1966.



at Olovyannaya are 5 large buildings, 3 of which are drive-in. These have been identified as 3 missile-ready buildings and 2 unidentified buildings.

The rail-to-road transfer point at Olovyannaya has been expanded by the addition of several buildings, the entire area being surrounded by a single security fence. A spray pond has been added to the area just east of, and adjacent to, the transfer point, with a connecting ditch running to the transfer point. A steamline runs from the transfer point to the 2 arch-roofed buildings [redacted]

The silo at Launch Site F1(24) is still in the midstage of construction, and appears to be lagging slightly behind the other Type IIID sites in Launch Group F. Pilings to support the silo-door tracks are visible, but back-filling has not yet taken place. Ditching is visible running from the control bunker excavation to the vicinity of the probable missile-ready buildings.

Analysis of [redacted] confirmed that the Type IIID control site at Olovyannaya, designated Launch Site F1(24), is not physically configured like other known Type IIID control facilities. It is felt that this facility may serve a function, as yet undetermined, for the entire complex. A possible function would be command and control, serving a number of launch groups within the complex. Geographically, Launch Site F1(24) is just about the center point of Type IIID deployment at Olovyannaya.

PERM COMPLEX

The Perm Complex was covered by [redacted]

[redacted] Five new Type IIID single-silo sites were identified at the Perm Com-

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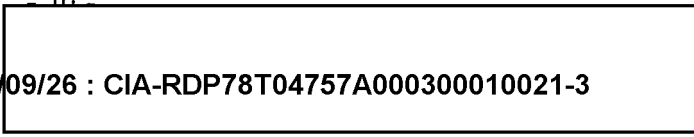
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plex as a result of this coverage. These new sites have been designated Launch Sites G15(23), G16(24), G17(22), G18(25), and Possible Launch Site G19(26). There are now 16 confirmed and probable, and 2 possible Type IIID sites at the Perm Complex. All of these sites are currently being carried as Launch Group G, since there is no discernible pattern to indicate a grouping of 10 sites. The total number of sites suggests at least 2 launch groups, and should this develop we will take the necessary action in subsequent revisions to place launch sites in appropriate launch groups.

Launch Site G6(14), previously carried as a valid site, cannot be confirmed as a Type IIID single-silo site on [redacted] and has been deleted from the tables. We estimate that Launch Sites G1(15), G2(7), G3(8), G4(10), G5(11), G7(13), G8(12), G9(28), and G13(19) will be completed and operational during the second quarter of 1966.

Like the Gladkaya and Drovyannaya complexes, no L-shaped electronic facility has been identified at the Perm Complex. There is a probable control facility located at Launch Site G7(13).

TATISHCHEVO COMPLEX

The Tatishchevo Complex has not been covered since our last revision. The complex consists of 32 confirmed and probable, and 3 possible Type IIID single-silo sites. We estimate that Launch Group A is complete and will become operational during the first quarter of 1966.

[redacted]

In light of the developments at Launch

Site F1(24) at the Olovyannaya Complex, the Tatishchevo Complex was re-examined and the Possible Launch Site(35) located at 51-41N 45-32E is confirmed as being similar to Launch Site F1 at Olovyannaya. A large building has been constructed in an excavation which presumably will be at the apex of an L-shaped electronic facility. A probable arch-roofed building is under construction alongside this excavation, and 3 large administration-type buildings and 2 barracks-type buildings have been constructed north-northeast of the launch site, adjacent to the rail-to-road transfer point. This site is located between Launch Groups A and B, suggesting that it is a separate entity and may serve a complex-wide function, possibly command and control.

ACTIVITY AT OTHER DEPLOYED COMPLEXES

Omsk Complex

[redacted] covered Launch Site A(1), an SS-8 hard site, at the Omsk Complex. This coverage revealed apparent gable-roofed structures over the 2 easternmost silo closures. It is highly un-

[redacted]

the protection of construction workers making modifications to the silo closure, or possibly during modifications within the launch silo itself. In addition to the covers at the launch silos there was possible activity in the elevated antenna area. All but one of the antennas are in the open position, or else the snow has been removed or melted from the covers.

Plesetsk Complex

In our 21st Revision we reported a new interferometer under construction at the Plesetsk Complex, similar to installations under construction at both Tyuratam and Kapustin Yar. Additional information on this facility

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was provided by [redacted] The installation appears to be made up of a plus-shaped facility superimposed on a larger L-shaped facility, with the intersection of the "plus" coincident with the junction of the 2 baselines of the "L". Numerous structures are noted at the center of the "plus"; the length of the legs from the center is approximately 700 feet, with a cleared area at the end of each of the 4 legs. The baseline lengths of the plus-shaped facility are approximately 1,400 feet, and the baseline lengths of the L-shaped facility are approximately 2,000 feet. The Plesetsk, Tyuratam, and Kapustin Yar installations all have the same appearance. They are all remote from the launch sites, and located near the support facilities. These installations have been assessed as highly accurate tracking/instrumentation facilities rather than guidance facilities. The presence of this type of facility at Plesetsk, as well as the numerous missile firings from Plesetsk in [redacted] would tend to support the use of Plesetsk for more than operations and training.

[redacted] revealed unidentified activity 20.5 nm east of the complex support facility at 62-55N 41-24E. This activity now consists of at least 4 areas of construction. The road and parallel ground scar leading from the complex appear complete, and terminate at the easternmost area of construction. The probable housing and construction support area located south of the road near its terminus shows little change since [redacted] The fenced construction area approximately 3,000 feet north-northeast of the probable housing and construction support area is served by a well-engineered road, and contains 2 earth-mounded buildings and a bunker. In addition there is a level, T-shaped earth mound similar in configuration to those at

Type IIID ICBM sites. Two other areas of construction activity are located approximately 3.5 nm east-northeast of the probable housing and construction support area. The main road has been extended to serve these areas. A road leads north from the main access road to one of the areas which contains a generally square excavation; detail within the excavation cannot be discerned. The other area, at the terminus of the main access road, is generally T-shaped and may be secured. Another area of construction activity, located 1.5 nm north-west of the probable housing and construction support area, is partially secured and consists of an access road and a clearing containing a T-shaped configuration which resembles a Type IIID ICBM site. These areas of construction activity could possibly reflect the initial deployment of single-silo sites at the Plesetsk Complex, but additional coverage is required before a determination can be made with any degree of confidence.

Continuing analysis of the Plesetsk Complex resulted in the identification of a probable missile gantry approximately 155 feet high on the west rail spur at Launch Site G(9). The 3 largest structures within the rail wishbones at Launch Sites G(9) and H(10) have been earth mounded. A shallow U-shaped excavation is located on the west side of the rail spur, and just south of the secured area at Launch Site B(2).

The construction of Launch Sites G and H, coupled with the identification of the probable gantry at Launch Site H, raises speculation concerning the future role planned for the Plesetsk Complex. In considering possibilities, it should be noted that gantries were not used in soft-site deployment of the SS-7 and SS-8 and, except for Launch Sites G and H at Plesetsk, only hardened and well-dispersed single silos have been identified in deployment since

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[redacted] In addition, these 2 sites at Ple-setsk cannot be matched with a prototype site at any Soviet test range. All these factors indicate that the Soviets may be preparing to accommodate a large launch vehicle at Ple-setsk. It cannot be determined, as yet, whether these sites are intended to accommodate a space system, an intercontinental weapon system, or a planned R & D flight-test program.

Svobodny Complex

[redacted] revealed 2 new roads under construction, extending in a westerly direction from the main complex road. One road branches off the main complex road between Launch Sites F(5) and A(3), and the other runs between Launch Sites A and D(4). An area of unidentified activity is observed to the south of the main complex road, [redacted] and the rail-to-road transfer point. Five new buildings are under construction at the complex support facility, and 2 new buildings are under construction at the transfer point.

All this new activity could be an indicator that new launch site construction may soon appear at the Svobodny Complex. Each of the SS-7 complexes which had the so-called second phase of the Type IIIA triple-silo hard sites has received Type IIID single-silo deployment, except for Svobodny, Shadrinsk, and Yurya.

Yurya Complex

[redacted] revealed several missiles parked outside their respective ready buildings at the Yurya Complex. They were identified as SS-7 missiles and were not equipped with reentry vehicles at the time of observation. The 4 missiles observed at Launch Sites I(9) and F(6) confirm the assessment that these buildings can hold 4 mis-

siles and that a refire capability still is intended for the soft launch pads. One possible explanation for the large number of missiles outside the ready buildings is that some modification activity is in progress within the buildings. A second, but less likely, possibility could be that an operational training exercise was in progress. However, if this were the case, it would appear that only 2 missiles would be removed from the ready building at a time, with 2 remaining in the building for maximum protection.

TYURATAM MISSILE TEST CENTER

Test Range Facilities

[redacted] provided excellent coverage of the Tyuratam Missile Test Center. Highlights of this coverage included the identification of 5 new single-silo sites under construction at the center; the determination that the 10 Type IIID single silos in Launch Group L are now complete; evidence of a possible vulnerability test of a Type IIIA launch site and associated facilities; and additional details of construction activity at various launch complexes at the rangehead.

Two new single-silo sites located in the vicinity of Launch Complexes B and I have been identified in an early stage of construction, and designated Launch Sites B4(35) and I3(36). Launch Site B4(35) is located approximately 3.5 nm west-northwest of the complex support facility at 46-00N 63-30E. The site consists of a square excavation containing a probable coring. A road serving this site has been constructed from the road providing access to Launch Site B2(16). A probable cable ditch extends to Launch Site I2(32). There was no evidence of construction of this

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site on [redacted] Launch Site I3(36) is located approximately 1.2 nm north-northwest of Launch Site I1(14) at 45-57N 63-25E. The site consists of a square excavation containing an apparent circular silo coring. A probable cable ditch extends from Launch Site I2(32) to I3(36), and a ground scar extends from I3(36) to a point north of Launch Sites A2 and A4. First evidence of construction of this site was on [redacted] and there was no evidence of construction on [redacted]. Quality of photography precludes determination of the type of these silos. However, it is reasonable to assume that they are Type IIIC sites because of their location in the vicinity of 4 other Type IIIC sites (A3, B2, 11, and 12).

Three of the new single-silo sites identified in a very early stage of construction at the center have been designated Launch Sites M1(33), M2(34), and M3(37). Launch Site M1(33) is located 4 nm east of the complex support facility for Launch Complex G at 46-03N 63-02E; Launch Site M2(34) is located 3.7 nm southeast of the Complex G support facility at 46-01N 63-01E. The sites are about 2.5 nm apart. The construction technique differs from that observed at any of the other single-silo sites identified at Tyuratam. Both silo corings are in shallow excavations approximately 200 by 100 feet, and the corings are approximately

[redacted] Launch Site M1(33) has a crane adjacent to the coring and 3 vehicles outside the excavation. Launch Site M2(34) has a plus-shaped ground scar superimposed over the site, with the intersection of the legs at the silo coring. There was no evidence of construction of these sites on [redacted] and both sites were first identified on [redacted]. Launch Site M3(37), which was newly identified on [redacted] is located

approximately 0.9 nm northeast of Launch Complex F (5) at 46-02N 63-06E. It consists of a rectangular excavation containing a probable silo coring. There was no evidence of this launch site on [redacted]

It is recognized that the initial construction techniques for these sites is somewhat different than those observed at Type IIIC and IIID sites at comparable development stages, but this may be due to an improved or more economic method of site construction. The appearance of new starts at Tyuratam at the present time, in light of the existing number of Type IIIC and IIID sites now available and under construction, tends to suggest a new or revised type of site or weapon association. A sound judgment cannot be made until these sites have progressed to a more advanced state of development and comparative analysis has been made with other facilities and launch activities at the rangehead.

With the discovery of these new single-silo sites, we are now carrying 21 soft and 34 hard launchers at Tyuratam.

At Launch Complex A, a newly identified building at least 5 stories high is located just northwest of the missile assembly and check-out building. A heat/power plant is located south of this building, and a probable steam line extends northwest to Complex J where it turns and parallels the access road to Launch Sites J1 and J2. Rails cannot be identified entering the new building; however, rail lines presently extend from the main support area of Complex A and pass immediately east of the building. The extension of rail service to the building would necessitate only the installation of rail spurs and a common switch.

At Launch Site B4(35), groundwork has begun on the construction of a new building on the western side of the access road, at its present terminus south of the silo.

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Of the considerable and varied activity at Tyuratam since our last revision, perhaps the most interesting activity is the appearance of a large crater in the vicinity of Launch Site D2(9). This crater is located approximately 900 feet south of the center silo, and has a distinct lip of undetermined height. There was no evidence of this crater on [redacted]

[redacted] The outer limits of the throwout material around the crater are indistinct, but appear to average about 250 feet from the center of the crater. The total depth of the crater is about 65 feet and the diameter ranges from 200 to 265 feet. The crater is apparently the result of an explosion, but whether the point of detonation was at the surface or subsurface has not been determined. On [redacted] the southern ready building at Launch Site D2 was being earth mounded and 12 revetments were observed in the general area south of the site. Construction of a good road leading to the crater was first observed on [redacted]

[redacted] this road had progressed to approximately the location of the crater. The size of the crater seems to preclude the possibility of a missile failure or accident and a vulnerability test appears to be the most logical explanation. The isolated location of Launch Site D2 at the eastern extremity of the rangehead adds to the plausibility of such a test.

Launch Complex G was completely covered by good, stereo photography on [redacted]

[redacted] At Launch Site G3/G4(11), the snow has been cleared from both pads and both gantrys are to the extreme rear. A long unidentified rail car is positioned on the track behind Pad G3. At Pad G4, there is a missile-erector mechanism in the vertical or near vertical position. This mechanism can be

retracted to a horizontal position flush with the pad and apron. It pivots at a point near the aperture in the pad and, in the horizontal position, extends to the rear between the gantry tracks; the rail car tracks appear to extend onto the mechanism in the horizontal position. Though not observed, Pad 3 probably is equipped also with this type of missile-erector system.

At Launch Site G5/G6(12) a 4-legged apparatus with a ring near the top is centered on each pad. The legs are approximately 30 feet high, and taper to meet the ring. The gantry is located to the extreme rear of the tracks. All indications are that these objects are like the brace-type fixture previously seen around the erected cylinder at Pad G6 on [redacted] [redacted] the cylinder was not present and the gantry was parked in the extreme rear position. These facts indicate that Pads G5 and G6 are equipped with separate cylinder-support-type fixtures which remain on the pad when not in use. It is uncertain whether these fixtures are used in conjunction with the gantry to erect the cylinder, but their presence does suggest that the cylinder is in place when a missile is launched.

Launch Site G7(18) is now in the late stage of construction. The silo is backfilled, and the silo door in the open position. A cylindrical object, possibly a silo liner, is located on the access road and centered on the silo aperture. The control building extends above ground level and has been completely earth banked on 2 sides. The legs of the electronic facility are backfilled, but construction appears to continue at 1 of the terminal antenna silos. Activity of undetermined significance was also observed at the abandoned construction support area between Launch Sites G1/G2 and G7. This area now contains an excavation approximately 200 by 75 feet. No conclusions can be

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drawn from this activity at this time, but we will report on this area in future revisions.

At Launch Site G8/G9(19), both silo doors are in the open position and appear to be very similar, if not identical, to those at Launch Group L. A ring-like object is adjacent to each silo, and 2 specially configured pieces of equipment are parked along the access road leading to the silos.

The silo door is closed at Launch Site I1(14), and a probable erector/transporter is on the apron in front of the silo. The silo coring at Launch Site I2(32) appears to have a circular casting supporting the sides, and that at Launch Site I3(36) appears to be similar, but has a probable environmental cover. No construction of the silo can be observed above the floor of the excavation.

At Launch Complex J, a fourth batch plant is newly identified at the construction support area. Footings for the gantry tracks are under construction at various points in 2 parallel ditches between the missile assembly/checkout building and the launch site. It appears that sections of the gantry tracks previously constructed are being re-excavated and enlarged, and a third ditch indicates a Y will enter both doors of the building. The rails previously observed serving the missile assembly/checkout building have been removed. At Launch Site J1/J2, the Y-shaped structures in the excavations are identified as blast deflectors.

Forward of the excavation at J1 is a ditch containing a conduit, which is open at the top. A similar ditch can be seen forward of J2.

Launch Site K1/K2(13) is in a late stage of construction. The silo door at K1 appears to be complete, and is open. An excavation containing an unidentified object is located just west of the loop road. Ditching extends from this excavation toward K1. The silo door appears to be under construction at K2. The lack of stereo photography precludes identification of a silo door at Launch Site K3(20). The silo is open and a light-toned circular object is located in the notch in the access ramp.

Launch Group L was covered by good photography on [redacted]

[redacted] All the sites in the group appear complete, and the silo doors were visible. The tops of most of the silos appear to be flush with the level access. To the rear of each silo door is a small structure which may function as part of the opening apparatus. The legs of the L-shaped electronic facility appear complete, except for the terminal antennas and the antenna at the intersection of the legs. Unidentified construction or excavation activity was noted just northwest of the silos at Launch Sites L4(21) and L8(28). The significance of this activity cannot be determined at this time. All the sites within the launch group are now served by improved roads.

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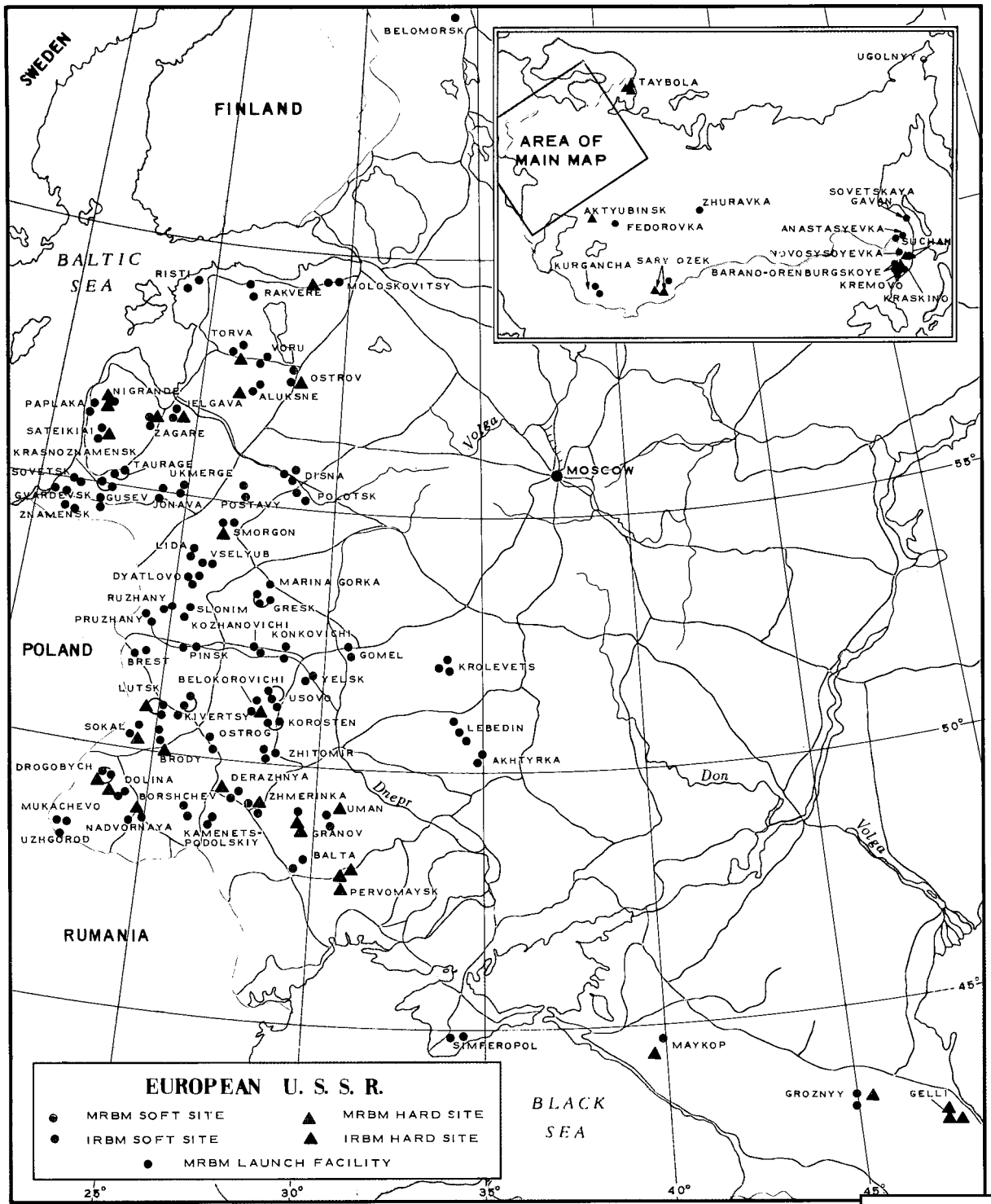


FIGURE 3. DEPLOYMENT OF SOVIET IRBM/MRBM COMPLEXES.

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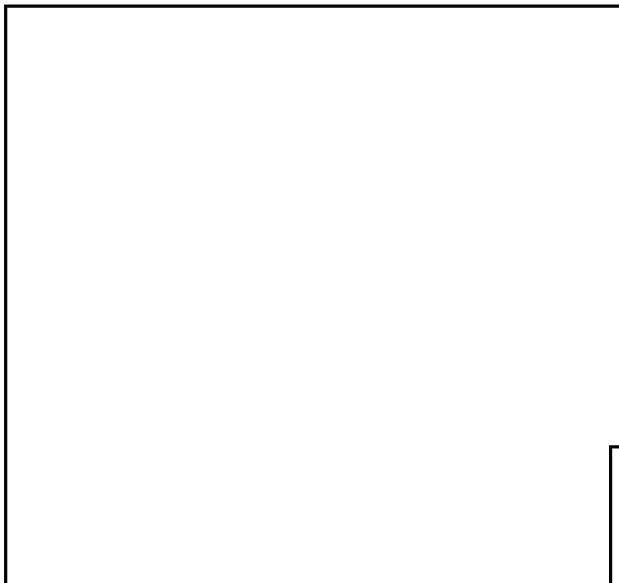
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SOVIET IRBM/MRBM DEPLOYMENT

[redacted] photography of IRBM and MRBM complexes and the Kapustin Yar Missile Test Center since our 21st Revision has not revealed any significant changes. With the identification of 1 additional fixed field site, we now carry a total of 94 sites with 352 launch positions in this category. The locations of deployed IRBM/MRBM complexes are shown in Figure 3. Information on selected launch sites at the Kapustin Yar Missile Test Center is given in Table 6. Typical configurations of the launch sites, and the weapons systems associated with each, are depicted in Figure 4.

IRBM DEPLOYMENT Current Force Level

The IRBM element of the Strategic Rocket Forces remains at 32 sites containing a total of 109 launchers, including 51 in a hard configuration. All of these sites are estimated to be operational.



MRBM DEPLOYMENT Current Force Level

The Soviet MRBM force consists of 156 sites containing 624 launchers, including 84

in a hard configuration. All of these launchers are estimated to be operational.

Fixed Field Sites

One additional fixed field site has been identified since our last revision, bringing the number of sites identified to 94 with a total of 352 launch positions.

The Gorokholina Site containing 4 launch positions is the second fixed field site to be associated with the Nadvornaya Complex. It is located at 48-45N 24-30E, can be negated on



UGOLNYY COMPLEX

A continuing analysis of the Ugolnyy Launch Site reveals features that are inconsistent with an MRBM site, yet are not wholly consistent with IRBM sites.

The most striking similarity to IRBM sites is the positioning of the central control buildings and the 2 buildings inboard of each of 3 launch pads; at the 4th pad, aligned at a 90-degree angle to the other 3, there is 1 building outboard of the pad. Three of the missile-ready buildings at Ugolnyy are the same size, and the 4th is smaller; the smaller building could be an MRBM ready building or the central ready building of an IRBM site. There is a similarity in the positioning of fuel/oxidizer tanks at Ugolnyy and the Sary Ozek 1 (Kara Babau 1) IRBM Site, but nothing resembling the 6 large fuel/oxidizer tanks at the Krolevets 2 or Lebedin 3 IRBM Sites is present at Ugolnyy or Sary Ozek.



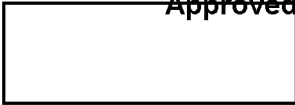
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Pad separation at the Ugolnyy Launch Site appears to be somewhat greater than normal for an MRBM site, but considerably less than that for IRBM sites; no explanation has been determined, but it appears to be a design feature rather than a terrain consideration. Orientation of the southernmost pad at a 90-degree angle to the others could be for a number of reasons, including the missile system employed and the intended target. The erectors on the pads appear to be of different sizes, with at least 1 erector smaller than the others.

In summary, because the Ugolnyy site displays a combination of features characteristic of both MRBM and IRBM sites, we believe that it probably has a dual function.

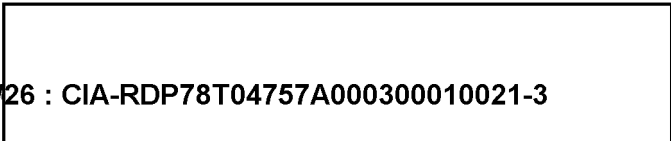
The probable SCAMP-type vehicles reported at Ugolnyy on

are no longer considered as such. Measurement of these objects does not provide a correlation with known SS-related equipment, including SS-5 fuel transporters. Pending further definitive photography, these vehicles are considered to be unidentified.

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TABLE 1. SUMMARY OF ESTIMATED STATUS OF IDENTIFIED ICBM, IRBM, AND MRBM LAUNCHERS AT DEPLOYED COMPLEXES, 25X1

Type	Sites	Launchers	Operational**	U/C	Type	Sites	Launchers	Operational	U/C
ICBM					IRBM				
IA	3	4	4	0	III	15	58	58	0
IB	2	4	0	4	IV	17	51	51	0
IIA	5	10	10	0	TOTALS	32	109	109	0
IIB	29	58	58	0	MRBM 25X1				
IIC	7	14	14	0	I	84	336	336	0
IID	30	60	60	0	II	51	204	204	0
IIIA	23	69	69	0	IV	21	84	84	0
IIIB	3	9	9	0	TOTALS	156	624	624	0
IIIC ₁ /	80	80	6	74	GRAND				
IIID ₂ /	136	136	20	116	TOTALS	188	733	733	0
TOTALS	318	444	250	194					

*See Tables 2, 4, and 5 for details. Figures include 3 launch silos at Type IIIA and IIIB ICBM and Type IV IRBM sites, and 4 launch silos at Type IV MRBM sites. Type IIIC and IIID ICBM sites contain single silos.

**In order to assess the greater threat, one member considers that 65 of the ICBM sites were completed in the first quarter of 1966, and a total of 289 launchers is now considered to be operational.

1/Figures do not include 6 sites carried in the possible category.

2/Figures do not include 13 sites carried in the possible category.

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TABLE 2. SUMMARY EVALUATION OF SOVIET ICBM DEPLOYMENT

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage		Estimated Quarter Site Operational				Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Const**	1st	2nd	3rd	4th		
ALEYSK																		
Site A(1)		52-27N 82-35E	IIC	1									Complete				Complete	
Site B(2)		52-29N 82-40E	IIC	1									Mid				U/C	
Site C(3)		52-33N 82-42E	IIC	1									Late				U/C	
Site D(4)		52-32N 82-34E	IIC	1									Mid				U/C	
Site E(5)		52-55N 82-30E	IIC	1									Mid				U/C	
Site F(6)		52-36N 82-36E	IIC	1									Mid				U/C	
Site G(7)		52-23N 82-46E	IIC	1									Mid				U/C	
Site H(8)		52-17N 82-49E	IIC	1									UNDET	67			U/C	
Site I(9)		52-15N 82-39E	IIC	1									UNDET				U/C	
Site J(10)		52-10N 82-36E	IIC	1									Mid				U/C	
Site K(11) Probable		52-12N 82-44E	IIC	1									UNDET				U/C	
DOMBAROVSKIY																		
Site A(4)		51-11N 59-37E	IIC	1									Complete				Complete	
Site B(3)		51-06N 59-39E	IIC	1									Complete				Complete	
Site C(2)		51-01N 59-41E	IIC	1									Complete				Complete	
Site D(1)		50-58N 59-32E	IIC	1									Mid				U/C	
Site E(6)		51-04N 59-28E	IIC	1									Mid		66		U/C	
Site F(7)		51-09N 59-31E	IIC	1									UNDET				U/C	
Site G(11)		51-12N 59-51E	IIC	1									Early				U/C	
Site H(10)		51-09N 59-44E	IIC	1									Mid				U/C	
Site I(8)		51-02N 59-37E	IIC	1									Early				U/C	
Site J(9)		51-06N 59-50E	IIC	1									Mid				U/C	
Site K(12)		51-10N 59-58E	IIC	1									Mid				U/C	
Site L(13)		51-05N 60-04E	IIC	1									Early				U/C	
Site M(14) Possible		50-50N 59-35E	IIC										Early				U/C	
DROVYANAYA																		
Site A(1)		51-25N 113-00E	IIB	2									Complete				Operational	
Site B(2)		51-25N 113-04E	IIB	1	3								Complete				Operational	
Site C(4)		51-28N 113-04E	ID	2									Complete				Operational	
Site D(5)		51-20N 113-01E	ID	2									Complete				Operational	
Site E(5)		51-23N 112-50E	IIB	3									Complete				Operational	
Site F(6)		51-20N 112-55E	IIB	3									Complete				Operational	
Site G(7)		51-58N 113-05E	IID	1									Complete				Operational	
Site G2(8)		51-34N 113-04E	IID	1									Complete				Operational	
Site G3(9)		51-36N 113-02E	IID	1									Complete				Operational	
Site G4(10)		51-53N 113-07E	IID	1									Complete				Operational	
Site G5(11)		51-36N 113-07E	IID	1									Complete				Operational	
Site G6(12)		51-29N 113-00E	IID	1									Complete				Operational	
Site G7(13)		51-31N 113-04E	IID	1									Complete				Operational	
Site G8(14)		51-29N 113-06E	IID	1									Complete				Operational	
Site G9(16)		51-35N 113-12E	IID	1									Complete				Operational	
Site G10(18)		51-31N 113-00E	IID	1									Late				Operational	
Site H1(22)		51-22N 113-02E	IID	1									Late			66	U/C	
Site H2(23)		51-25N 113-09E	IID	1									Late				U/C	
Site H3(24)		51-23N 113-06E	IID	1									Late				U/C	
Site H4(21)		51-20N 113-04E	IID	1									Late				U/C	
Site H5(25)		51-18N 112-57E	IID	1									Late				U/C	
Site H6(20)		51-22N 112-57E	IID	1									Late				U/C	
Site H7(15)		51-26N 113-02E	IID	1									Late				U/C	
Site H8(19)		51-21N 112-51E	IID	1									Late				U/C	
Site H9(26)		51-21N 112-47E	IID	1									Late				U/C	
Site H10(28)		51-24N 112-52E	IID	1									Late				U/C	

25X1

25X1

TOP SECRET

TOP SECRET

25X1

25X1

TABLE 2. (Continued)

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage		Estimated Quarter Site Operational				Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const**	1st	2nd	3rd	
GLADKAYA																		
Site A(3)		56-20N 92-18E	IID	2									Complete					Operational
Site B(2)		56-20N 92-27E	IID	2									Complete	64				Operational
Site D(5)		56-20N 92-13E	IIIA		3								Late			64		Operational
Site F1(7)		56-14N 92-15E	IID		1								Late	66				U/C
Site F2(8)		56-17N 92-18E	IID		1								Late	66				U/C
Site F3(14)		56-18N 92-22E	IID		1								Late	66				U/C
Site F4(9)		56-14N 92-21E	IID		1								Late	66				U/C
Site F5(10)		56-12N 92-15E	IID		1								UNDET	66				U/C
Site F6(11)		56-11N 92-10E	IID		1								Late	66				U/C
Site F7(12)		56-12N 92-08E	IID		1								Late	66				U/C
Site F8(15)		56-17N 92-13E	IID		1								Late	66				U/C
Site F9(22)		56-14N 92-26E	IID		1								Late	66				U/C
Site F10(20)		56-12N 92-05E	IID		1								Late	66				U/C
Site C1(16)		56-14N 91-45E	IID		1								Mid			66		U/C
Site C2(17) Possible		56-12N 91-44E	IID		1								UNDET				66	U/C
Site G3(18)		56-13N 91-55E	IID		1								Mid			66		U/C
Site G4(21)		56-13N 92-00E	IID		1								Mid			66		U/C
Site G5(23)		56-13N 91-49E	IID		1								Mid			66		U/C
Site C6(24) Possible		56-09N 91-44E	IID		1								UNDET				66	U/C
Site G7 Possible													UNDET				66	U/C
Site H1(27)		56-13N 92-39E	IID		1								Mid			67		U/C
Site H2(30) Probable		56-15N 92-45E	IID		1								Mid			67		U/C
Site H3(28)		56-11N 92-45E	IID		1								Mid			67		U/C
Site H4(26) Probable		56-11N 92-39E	IID		1								Mid			67		U/C
Site H5(25)		56-12N 92-33E	IID		1								Mid			67		U/C
Site H6(34) Possible		56-17N 92-33E	IID		1								UNDET			67		U/C
Site H7(33) Possible		56-17N 92-39E	IID		1								UNDET			67		U/C
Site H8(29) Probable		56-12N 92-50E	IID		1								Mid			67		U/C
Site H9(31) Possible		56-15N 92-52E	IID		1								UNDET			67		U/C
Site H10(32) Possible		56-18N 92-57E	IID		1								UNDET			67		U/C
IMENI GASTELLO																		
Site A(1)		51-03N 66-06E	IIIC		1								Late			66		U/C
Site B(2)		51-06N 66-02E	IIIC		1								Mid			66		U/C
Site C(3)		51-08N 66-06E	IIIC		1								Mid			66		U/C
Site D(4)		51-07N 66-13E	IIIC		1								Late			66		U/C
Site E(5)		51-13N 66-13E	IIIC		1								Late			66		U/C
Site F(6)		51-13N 66-05E	IIIC		1								Mid			66		U/C
Site C(7)		50-57N 66-09E	IIIC		1								Mid		67			U/C
Site H(8)		50-58N 66-00E	IIIC		1								Mid		67			U/C
Site J(9)		50-58N 66-17E	IIIC		1								Mid		67			U/C
Site J(10)		50-52N 66-19E	IIIC		1								UNDET			67		U/C
Site K(11)		50-52N 65-59E	IIIC		1								Mid			67		U/C
Site L(12)		50-51N 66-09E	IIIC		1								Mid			67		U/C
Site M(13)		50-56N 65-49E	IIIC		1								UNDET			67		U/C
Site N(14)		50-54N 65-42E	IIIC		1								Early		68			U/C
Site O(15) Possible		50-54N 65-33E	IIIC		1								Early					U/C
ITATKA																		
Site A(1)		56-59N 85-32E	IIB	2									Complete					Operational
Site B(2)		57-01N 85-39E	IIB	2									Complete	63				Operational
Site C(3)		56-54N 85-39E	IID	2									Complete					Operational

25X1

TOP SECRET

25X1

TOP SECRET

25X1

25X1

TABLE 2. (Continued)

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const**	1st	2nd	3rd	4th	
KARTALY																			
Site A(1)		53-01N 60-26E	IIIC	1								Late			62				U/C
Site B(2)		52-56N 60-31E	IIIC	1								Late			66				U/C
Site C(3)		52-55N 60-24E	IIIC	1								Mid			66				U/C
Site D(4)		52-51N 60-27E	IIIC	1								Mid			66				U/C
Site E(5)		53-00N 60-16E	IIIC	1								Mid		66					U/C
Site F(6)		53-04N 60-18E	IIIC	1								Mid			66				U/C
Site G(7)		53-09N 60-42E	IIIC	1								Mid			67				U/C
Site H(8)		53-08N 60-34E	IIIC	1								UNDET	67						U/C
Site I(10)		53-09N 60-25E	IIIC	1								Early			67				U/C
Site J(12) Probable		53-12N 60-39E	IIIC	1								Early			67				U/C
Site K(11)		53-12N 60-32E	IIIC	1								Early			67				U/C
Site L Possible		53-12N 60-11E	IIIC									Early					67		U/C
Site M Possible		53-05N 60-07E	IIIC									Early						67	U/C
Site N(14) Probable		53-00N 60-47E	IIIC	1								Early							U/C
Site O(15) Possible		52-56N 60-39E	IIIC									Early							U/C
Site P(13) Probable		53-15N 60-24E	IIIC	1								Early					67		U/C
KOSTROMA																			
Site A(1)		58-02N 41-22E	IIIB	2								Complete			62				Operational
Site B(2)		58-02N 41-07E	IIIB	2								Complete			66				Operational
Site C(3)		57-59N 41-09E	IIIB	2								Complete			63				Operational
Site D(4)		58-05N 41-40E	IIIB	2								Complete			63				Operational
Site E(5)		57-58N 41-14E	IIIA		3							Complete			63				Operational
Site F(6)		57-55N 41-10E	IID	2								Complete			63				Operational
Site G(7)		58-06N 41-32E	IID	2								Complete			64				Operational
KOZELSK																			
Site A(3)		53-54N 35-45E	IIC	2								Complete			63				Operational
Site B(2)		53-48N 35-47E	IIC	2								Complete			63				Operational
Site D(4)		53-54N 35-51E	IIC	2								Complete			63				Operational
Site E(5)		53-51N 35-41E	IIIB		3							Complete			64				Operational
Site F(6)		53-41N 35-39E	IIIB		3							Complete			64				Operational
NOVOSIBIRSK																			
Site A(2)		55-19N 83-10E	IIIB	2								Complete	63						Operational
Site B(1)		55-19N 83-02E	IIIA		3							Complete	63						Operational
Site C(3)		55-23N 82-54E	IIIA		3							Complete	64						Operational
Site D(4)		55-22N 83-14E	IID	2								Complete	64				63		Operational
Site E(5)		55-20N 82-56E	IID	2								Complete	64						Operational

25X1

TOP SECRET

TOP SECRET

25X1

25X1

TABLE 2. (Continued)

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const**	1st	2nd	3rd	4th	
OLOVYANNAYA																			
Site A(1)		50-54N 115-48E	IIIA	3								Complete	64						Operational
Site B(2)		50-55N 115-45E	IIIA	3								Complete	64						Operational
Site C(3)		51-01N 115-58E	IIIA	3								Complete	64						Operational
Site D1(4)		51-07N 116-05E	IIID	1								Late	66					U/C	
Site D2(5)		51-04N 116-08E	IIID	1								Late	66					U/C	
Site D3(7)		51-02N 116-09E	IIID	1								Late	66					U/C	
Site D4(8)		51-02N 116-02E	IIID	1								Late	66					U/C	
Site D5(9)		51-03N 115-59E	IIID	1								Late	66					U/C	
Site D6(10)		51-05N 115-59E	IIID	1								Late	66					U/C	
Site D7(6)		51-04N 116-04E	IIID	1								Late	66					U/C	
Site D8(12)		51-08N 116-08E	IIID	1								Late	66					U/C	
Site D9(13)		51-06N 116-12E	IIID	1								Late	66					U/C	
Site D10(11)		51-05N 116-15E	IIID	1								Late	66					U/C	
Site E1(17)		50-56N 115-58E	IIID	1								Late	66					U/C	
Site E2(14)		51-00N 116-01E	IIID	1								UNDET	66					U/C	
Site E3(15)		50-57N 116-01E	IIID	1								Late	66					U/C	
Site E4(16)		50-54N 116-02E	IIID	1								Late	66					U/C	
Site E5(15)		50-53N 115-56E	IIID	1								Late	66					U/C	
Site E6(18)		50-55N 115-52E	IIID	1								Mid	66					U/C	
Site E7(20)		50-59N 115-54E	IIID	1								Late	66					U/C	
Site E8(21)		50-57N 115-49E	IIID	1								Late	66					U/C	
Site E9(22)		51-00N 115-47E	IIID	1								Mid	66					U/C	
Site E10(23)		51-01N 115-51E	IIID	1								Late	66					U/C	
Site F1(24)		50-51N 115-51E	IIID	1								Mid	67					U/C	
Site F2(35)		50-50N 115-56E	IIID	1								Mid	67					U/C	
Site F3(36)		50-48N 115-57E	IIID	1								Mid	67					U/C	
Site F4(37)		50-47N 115-54E	IIID	1								Mid	67					U/C	
Site F5(38)		50-49N 115-51E	IIID	1								Mid	67					U/C	
Site F6(39)		50-51N 116-00E	IIID	1								Mid	67					U/C	
Site F7(40)		50-49N 116-03E	IIID	1								Mid	67					U/C	
Site F8(43)		50-46N 116-02E	IIID	1								Mid	67					U/C	
Site F9(44)		50-43N 115-48E	IIID	1								Mid	67					U/C	
Site F10(42)		50-49N 116-07E	IIID	1								Mid	67					U/C	
Site F11(41)		50-52N 116-07E	IIID	1								Mid	67					U/C	
Site G1(25)		50-43N 115-44E	IIID	1								Mid	67					U/C	
Site G2(26)		50-46N 115-42E	IIID	1								Mid	67					U/C	
Site G3(27)		50-47N 115-43E	IIID	1								Mid	67					U/C	
Site G4(28)		50-45N 115-49E	IIID	1								Mid	67					U/C	
Site G5(29)		50-41N 115-50E	IIID	1								Mid	67					U/C	
Site G6(30)		50-40N 115-46E	IIID	1								Mid	67					U/C	
Site G7(31)		50-41N 115-41E	IIID	1								Mid	67					U/C	
Site G8(32)		50-39N 115-49E	IIID	1								Mid	67					U/C	
Site G9(33)		50-38N 115-41E	IIID	1								Mid	67					U/C	
Site G10(34)		50-49N 115-42E	IIID	1								Mid	67					U/C	
Site H1(46)		50-40N 115-58E	IIID	1								Mid	67					U/C	
Site H2(47)		50-43N 116-02E	IIID	1								Mid	67					U/C	
Site H3(49)		50-41N 116-05E	IIID	1								Mid	67					U/C	
Site H4(50)		50-37N 116-03E	IIID	1								Mid	67					U/C	
Site H5 Possible												UNDET	67					U/C	
Site H6(45)		50-40N 115-54E	IIID	1								Mid	67					U/C	
Site H7(51)		50-42N 115-57E	IIID	1								Mid	67					U/C	
Site H8(48)		50-44N 116-07E	IIID	1								Mid	67					U/C	
OMSK																			
Site A(1)		55-09N 73-38E	IIIB	3								Complete	64						Operational

25X1

TOP SECRET

25X1

25X1

[Redacted]

TOP SECRET

[Redacted]

25X1

TABLE 2. (Continued)

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status	
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const**	1st	2nd	3rd	4th		
PERM																				
Site A(1)		57-41N 56-11E	IIB	2								Complete							25X1	Operational
Site B(2)		57-44N 55-55E	IIB	2								Complete							63	Operational
Site C(3)		57-38N 56-07E	IIB	2								Complete							63	Operational
Site D(6)		57-42N 55-47E	IID	2								Complete							64	Operational
Site E(5)		57-45N 56-00E	IID	2								Complete							64	Operational
Site F(4)		57-41N 56-04E	IIIA		3							Complete								Operational
Site G(15)		57-41N 56-11E	IID		1							Late	66							U/C
Site C(2)		57-42N 56-00E	IID		1							Late	66							U/C
Site C(3)		57-42N 55-54E	IID		1							Late	66							U/C
Site C(4)	Probable	57-42N 55-50E	IID		1							Late	66							U/C
Site C(5)		57-45N 56-06E	IID		1							Late	66							U/C
Site G(13)		57-44N 56-16E	IID		1							Late	66							U/C
Site C(8)		57-46N 56-10E	IID		1							Late	66							U/C
Site C(9)	Probable	57-46N 56-14E	IID		1							Late	66							U/C
Site G(10)		57-45N 55-46E	IID		1							Mid							66	U/C
Site C(11)		57-46N 55-49E	IID		1							Late							66	U/C
Site G(12)		57-42N 56-22E	IID		1							UNDET	66							U/C
Site G(13)	Probable	57-41N 56-16E	IID		1							UNDET	66							U/C
Site G(14)	Possible	57-39N 56-08E	IID		1							UNDET							66	U/C
Site G(15)		57-40N 56-23E	IID		1							Mid								U/C
Site G(16)	Probable	57-38N 55-47E	IID		1							Early								U/C
Site G(17)	Probable	57-43N 55-38E	IID		1							Mid								U/C
Site G(18)		57-50N 55-48E	IID		1							Early								U/C
Site G(19)	Possible	57-50N 55-42E	IID		1							Early								U/C
PLESETSK																				
Site 1(1)		62-56N 40-27E	IA	2	2							Complete	60							Operational
Site 2(2)		62-56N 40-32E	IA	1								Complete	60							Operational
Site 3(3)		62-58N 40-41E	IA	1								Complete		60						Operational
Site A(4)		62-59N 40-47E	IIA	2								Complete							61	Operational
Site B(5)		63-03N 40-57E	IIB	2								Complete							62	Operational
Site C(6)		63-01N 40-53E	IIIA		3							Complete	63							Operational
Site D(8)		62-34N 40-47E	IC	2								Complete							63	Operational
Site E(7)		62-31N 40-53E	IC	2								Complete							63	Operational
Site F(1)		62-52N 40-44E	IB	2								UNDET								U/C
Site G(9)		62-53N 40-51E	IB	2								UNDET								U/C
Site H(10)		62-53N 40-52E	IB	2																
SHADRINSK																				
Site A(1)		56-09N 63-51E	IIIA		3							Complete							63	Operational
Site B(2)		56-10N 64-02E	IIIA		3							Complete	64							Operational
Site C(3)		56-07N a3-57E	IIIA		3							Complete							64	Operational
SVOBODNY																				
Site A(3)		51-55N 128-10E	IIB	2								Complete							62	Operational
Site B(1)		51-49N 128-19E	IIB	2								Complete							62	Operational
Site C(2)		51-53N 128-23E	IIB	2								Complete							62	Operational
Site D(4)		51-58N 128-07E	IID	2								Complete	64							Operational
Site E(6)		51-53N 128-00E	ID	2								Complete								Operational
Site F(5)		51-52N 128-13E	IID	2								Complete								Operational
Site G(7)		51-38N 127-58E	IIIA		3							Complete							63	Operational
Site H(8)		52-03N 128-06E	IID	2								Complete	64							Operational

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TABLE 2. (Continued)

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status	
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const**	1st	2nd	3rd	4th		
TATISHEVO																				
Site A1(1)		51-48N 45-39E	IID	1																
Site A2(2)		51-51N 45-41E	IID	1																
Site A3(3)		51-38N 45-45E	IID	1																
Site A4(11)		51-52N 45-31E	IID	1																
Site A5(5)		51-45N 45-41E	IID	1																
Site A6(6)		51-44N 45-35E	IID	1																
Site A7(7)		51-47N 45-34E	IID	1																
Site A8(8)		51-50N 45-34E	IID	1																
Site A9(9)		51-49N 45-29E	IID	1																
Site A10(10)		51-53N 45-36E	IID	1																
Site B1(14)		51-33N 45-29E	IID	1																
Site B2(12)		51-36N 45-30E	IID	1																
Site B3(17)		51-36N 45-35E	IID	1																
Site B4(15)		51-32N 45-35E	IID	1																
Site B5(16)		51-29N 45-28E	IID	1																
Site B6(19)		51-31N 45-23E	IID	1																
Site B7(13)		51-34N 45-23E	IID	1																
Site B8(29)		51-29N 45-33E	IID	1																
Site B9(21)		51-38N 45-24E	IID	1																
Site B10(30)		51-40N 45-29E	IID	1																
Site C1(20) Probable		51-33N 45-18E	IID	1																
Site C2(28) Probable		51-27N 45-21E	IID	1																
Site C3(25) Probable		51-26N 45-16E	IID	1																
Site C4(27) Probable		51-29N 45-15E	IID	1																
Site C5(26) Probable		51-28N 45-10E	IID	1																
Site C6(22) Possible		51-33N 45-12E	IID	1																
Site C7(24)		51-32N 45-06E	IID	1																
Site C8(32)		51-25N 45-10E	IID	1																
Site C9(34) Possible		51-34N 45-09E	IID	1																
Site C10(36) Probable		51-42N 45-13E	IID	1																
Site D1(38) Probable		51-40N 45-02E	IID	1																
Site D2(40) Possible		51-43N 45-02E	IID	1																
Site D3(39)		51-46N 45-06E	IID	1																
Site D4(41) Probable		51-43N 45-09E	IID	1																
Site D5(42)		51-45N 45-11E	IID	1																
TEYKOVO																				
Site A(1)		56-55N 40-27E	IIB	2																
Site B(2)		56-56N 40-33E	IIB	2																
Site C(3)		56-55N 40-17E	IIB	2																
Site D(4)		56-59N 40-40E	IIB	2																
Site E(5)		56-55N 40-10E	IIB	2																
Site F(6)		56-55N 40-22E	IIB	2																
TYUMEN																				
Site A(3)		56-52N 65-34E	IIC	2																
Site C(2)		56-51N 65-27E	IIC	2																

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TABLE 2. (Continued)

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status	
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const**	1st	2nd	3rd	4th		
UZHUR																				
Site A(1)		55-20N 88-43E	IIC	1											Complete					Complete
Site B(2)		55-18N 89-38E	IIC	1											Complete					Complete
Site C(3)		55-20N 89-33E	IIC	1											Complete					Complete
Site D(4)		55-17N 89-26E	IIC	1											Complete					Complete
Site E(5)		55-13N 89-33E	IIC	1											Complete					Complete
Site F(6)		55-25N 89-39E	IIC	1											Complete					Complete
Site G(7)		55-22N 89-27E	IIC	1											Complete					Complete
Site H(8)		55-19N 89-20E	IIC	1											Mid	67				U/C
Site I(9)		55-13N 89-21E	IIC	1											Mid	67				U/C
Site J(10)		55-12N 89-09E	IIC	1											UNDET	67				U/C
Site K(11)		55-16N 89-10E	IIC	1											Mid	67				U/C
Site L(12)		55-08N 89-37E	IIC	1											Mid	67				U/C
Site M(13)		55-13N 89-42E	IIC	1											Mid	67				U/C
Site N(14)		55-25N 89-13E	IIC	1											UNDET	67		67		U/C
Site O(15)		55-05N 89-48E	IIC	1											Early	67				U/C
Site P(16)		55-01N 89-33E	IIC	1											Early	67				U/C
Site Q(17)		55-02N 89-43E	IIC	1											Early	67				U/C
Site R(18)		54-57N 89-40E	IIC	1											Early	67				U/C
Site S(19)		55-16N 89-44E	IIC	1											Early	67				U/C
VERKHNYAYA SALDA																				
Site A(2)		58-09N 60-16E	IIB	2											Complete					Operational
Site B(1)		58-06N 60-21E	IIA	2											Complete				61	Operational
Site C(3)		58-10N 60-28E	IIA	2											Complete				61	Operational
Site D(4)		58-12N 60-34E	IIB	2											Complete				62	Operational
Site E(5)		58-14N 60-55E	IIB	2											Complete				62	Operational
Site F(7)		58-14N 60-41E	IIA		3										Complete				63	Operational
Site G(8)		58-13N 60-49E	IIA		3										Complete				63	Operational
Site H(9)		58-03N 60-13E	IID	2											Complete				63	Operational
Site I(10)		58-09N 60-32E	IID	2											Complete				63	Operational
YEDROVO																				
Site A(2)		57-48N 33-36E	IIB	2											Complete				62	Operational
Site B(1)		57-48N 33-14E	IIB	2											Complete				62	Operational
Site C(3)		57-49N 33-08E	IID	2											Complete	64				Operational
Site D(4)		57-48N 33-28E	IID	2											Complete				63	Operational
Site E(8)		57-52N 33-18E	IIA		3										Complete				63	Operational
Site F(6)		57-44N 33-06E	IID	2											Complete				63	Operational
Site F(7)		57-47N 33-02E	IID	2											Complete				63	Operational
Site I(3)		57-52N 33-27E	IIA		3										Complete	64				Operational
YOSHKAR-OLA																				
Site A(1)		56-35N 48-09E	IIB	2											Complete				62	Operational
Site B(2)		56-35N 48-18E	IIB	2											Complete				62	Operational
Site C(3)		56-32N 48-27E	IIB	2											Complete				63	Operational
Site D(4)		56-31N 48-20E	IID	2											Complete				63	Operational
Site E(5)		56-34N 48-13E	IID	2											Complete				63	Operational
Site F(6)		56-36N 48-28E	IID	2											Complete				64	Operational

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TABLE 2. (Continued)

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Quarter Site Operational				Estimated Status	
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const**	1st	2nd	3rd	4th		
YURVA																				
Site A(2)		59-10N 49-32E	IIA	2																
Site B(1)		59-09N 49-40E	IIA	2																
Site C(3)		59-13N 49-25E	IIA	2																
Site D(4)		59-16N 49-22E	IIA	2																
Site E(5)		59-23N 49-17E	IIIA		3															
Site F(7)		59-21N 49-14E	IIA	2																
Site G(6)		59-04N 49-51E	IIIA		3															
Site H(8)		59-11N 49-47E	IID	2																
Site I(11)		59-06N 49-25E	IID	2																
Site J(9)		59-06N 49-45E	IID	2																
Site K(10)		59-13N 49-18E	IIIA		3															
ZHANGIZ-TOBE																				
Site A(1)		49-12N 81-00E	IIIC	1																
Site B(2)		49-16N 80-59E	IIIC	1																
Site C(3)		49-11N 80-54E	IIIC	1																
Site D(4)		49-10N 81-04E	IIIC	1																
Site E(5)		49-06N 81-03E	IIIC	1																
Site F(6)		49-08N 80-58E	IIIC	1																
Site G(7)		49-19N 80-50E	IIIC	1																
Site H(8)		49-26N 80-57E	IIIC	1																
Site I(9)		49-23N 80-49E	IIIC	1																
Site J(10)		49-21N 80-58E	IIIC	1																
Site K(11)		49-17N 81-05E	IIIC	1																
Site L(12) Possible		49-22N 81-06E	IIIC																	
				150	294															

*TDI site designators are indicated in parentheses.
 **To clarify the terms used in referring to construction stages at single-silo sites, identifiable steps in the construction process have been categorized as follows: early stage, clearing and grading, open-cut silo excavation, silo coring; midstage, silo under construction, silo backfilling; late stage, final backfill and grading, silo door installed; complete final configuration apparent; operational, equipment installed and checked out (estimated). One member considers a launch site to be operational when backfilling and grading have been completed, the silo door installed, and the final road pattern evident. If a valid site should not be observed in a completed stage because of the lack of adequate repetitive photographic coverage at the time, the site is considered to be complete and operational after the passage of 21 months of construction time.

1/Not considered an operational ICBM site (see 16th Revision).

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TABLE 3. SUMMARY EVALUATION OF LAUNCH FACILITIES, TYURATAM MISSILE TEST CENTER

Location*	BE Number	Coordinates	Type of Site	Number of Launchers		Site Negated		First Coverage		Latest Coverage		Stage of Const on Last Usable Coverage			Estimated Status	
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	Const		
Complex A1(1) A2 A3(15) A4		45-55N 63-21E	I	1											Complete	Operational
		45-55N 63-21E	I	1											Complete	Operational
		45-54N 63-20E	III C ρ		1										Complete	Operational
Complex B1(2) B2(16) B3(17) B4(35)		46-00N 63-34E	I	1											Complete	Operational
		45-59N 63-33E	IIA ρ	1											Complete	Operational
		46-00N 63-34E	III C	1	1										Complete	Operational
		46-00N 63-34E	II	1	1										Complete	Operational
Complex C1(3) C2 C3		45-48N 63-38E	III ρ	1											Complete	Operational
		45-48N 63-39E	II	1											Complete	Operational
		45-48N 63-39E	II	1											Complete	Operational
Complex D1(4) D2(9)		45-59N 63-57E	IIIA ρ		3										Complete	Operational
		45-59N 63-57E	IIIA ρ		3										Complete	Operational
Complex E1(6) E2 E3		45-48N 63-12E	II C ρ	1											Complete	Operational
		45-48N 63-12E	II C	1											Complete	Operational
		45-48N 63-12E	II C	1											Complete	Operational
Complex F(5) G1/G2(7) G3/G4(11) G5/G6(12) G7(18) G8/G9(19)		46-02N 63-06E	IIIB ρ	2	3										Complete	Operational
		46-03N 62-56E	I	2	3										Complete	Operational
Complex H(8) I1(14) I2(32) I3(36)		46-05N 62-54E	II	2											Complete	Operational
		46-04N 62-56E	II C ρ	1											Complete	Operational
		46-04N 62-57E	III	2	2										Complete	Operational
Complex J K1/K2(13) K3(20)		45-59N 63-42E	I	2											Complete	Operational
		45-56N 63-26E	III C ρ	1											Complete	Operational
		45-56N 63-26E	III	1											Complete	Operational
Launch Group L(21-30) M1(33) M2(34) M3(37)		46-02N 63-02E	III D ρ	10											Complete	Operational
		46-02N 63-02E	III	1											Complete	Operational
		46-03N 62-59E	III	1											Complete	Operational
		46-03N 62-59E	III	1											Complete	Operational
Total				21	34											

*TDI site designators are indicated in parentheses.

ρ Prototype.

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TABLE 4. SUMMARY EVALUATION OF SOVIET IRBM DEPLOYMENT

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR
AKTYUBINSK Launch Complex PETROVSKIY		50-00-30N 56-58-00E	IV	3		25X1 Complete
BELOMORSK Launch Complex RAMOYE		64-25-45N 34-18-15E	III	4		Complete
FEDOROVKA Launch Complex TRAKTOVYY		53-25-15N 62-23-00E	III	4		Complete
GELLI Launch Complex KAKASHURA		42-38-45N 47-27-00E	IV	3		Complete
GELLI		42-26-30N 47-28-30E	IV	3		Complete
PARAUL		42-47-30N 47-23-00E	IV	3		25X1 Complete
GRANOV Launch Complex GRANOV 1		48-56-15N 29-30-15E	III	4		Complete
GRANOV 2		48-50-00N 29-28-45E	IV	3		Complete
KALNIK		48-59-30N 29-21-45E	IV	3		Complete
KROLEVETS Launch Complex KROLEVETS 1		51-36-45N 33-29-30E	III	4		Complete
KROLEVETS 2		51-40-45N 33-31-15E	III	4		Complete
BEREZA		51-43-45N 33-43-45E	III	2		Complete
LEBEDIN Launch Complex LEBEDIN 1		50-33-00N 34-25-45E	III	4		Complete
LEBEDIN 2		50-35-45N 34-24-30E	III	4		Complete
LEBEDIN 3		50-38-00N 34-27-30E	III	4		Complete
NIGRANDE Launch Complex NIGRANDE		56-31-00N 22-02-15E	III	4		Complete
SKRUNDA		56-35-30N 21-49-15E	IV	3		Complete
VAINODE		56-28-30N 21-50-15E	IV	3		Complete
NOVOSYSOYEVKA Launch Complex NOVOSYSOYEVKA 1		44-11-45N 133-26-15E	III	4		Complete
NOVOSYSOYEVKA 2		44-07-15N 133-28-30E	IV	3		Complete

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TABLE 4. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR
PERVOMAYSK Launch Complex						
KAMENNY MOST		47-58-00N 30-53-15E	IV	3		25X1 Complete
SEME NOVKA 1		47-58-45N 30-59-00E	IV	3		Complete
SEME NOVKA 2		47-53-30N 30-58-45E	IV	3		Complete
SARY OZEK Launch Complex						
KARA BABAU 1		44-32-00N 77-46-15E	III	4		Complete
KARA BABAU 2		44-31-00N 77-58-45E	IV	3		Complete
KARA BABAU 3		44-30-15N 77-41-15E	IV	3		Complete
SMORGON Launch Complex						
SMORGON 1		54-31-45N 26-17-30E	III	4		Complete
SMORGON 2		54-26-00N 26-18-30E	IV	3		25X1 Complete
SMORGON 3		54-36-15N 26-22-30E	III	4		Complete
TAYBOLA Launch Complex						
TAYBOLA 1		68-28-00N 33-15-30E	IV	3		Complete
TAYBOLA 2		68-30-30N 33-23-15E	IV	3		Complete
ZHURAVKA Launch Complex						
ZHURAVKA		54-36-30N 76-39-45E	III	4		Complete

*TDI site designators have been adopted for IRBM launch sites.

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TABLE 5. SUMMARY EVALUATION OF SOVIET MRBM DEPLOYMENT

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR
AKHTYRKA Launch Complex						
AKHTYRKA 1		50-16-00N 34-50-15E	II	4		Complete
AKHTYRKA 2		50-22-00N 34-57-00E	II	4		Complete
ALUKSNE Launch Complex						
LEJASCIEMS 1		57-21-00N 26-44-45E	II	4		Complete
RUSKI		57-25-15N 26-50-00E	II	4		Complete
LEJASCIEMS 2		57-13-00N 26-33-30E	IV	4		Complete
ANASTASYEVKA Launch Complex						
ANASTASYEVKA 1		48-34-15N 135-37-45E	II	4		Complete
ANASTASYEVKA 2		48-35-45N 135-41-00E	II	4		Complete
BALTA Launch Complex						
BALTA 1		48-01-45N 29-34-00E	II	4		Complete
BALTA 2		48-07-00N 29-34-30E	II	4		Complete
BARANO-ORENBURGSKOYE Launch Complex						
SOFIYE ALEKSEYEVSKOYE		44-16-15N 131-22-30E	I	4		Complete
BARANO-ORENBURGSKOYE		44-19-45N 131-30-45E	I	4		Complete
BELOKOROVICHI Launch Complex						
OLEVSK 1		51-08-45N 28-03-15E	I	4		Complete
OLEVSK 2		51-10-30N 27-59-30E	I	4		Complete
RUDNYA ZLOTINSKAYA		51-03-30N 28-07-30E	IV	4		Complete
BORSHCHEV Launch Complex						
SKALA PODOLSKAYA 1		48-51-00N 26-08-30E	I	4		Complete
SKALA PODOLSKAYA 2		48-52-45N 26-03-30E	I	4		Complete
BREST Launch Complex						
BREST 1		51-48-45N 24-00-45E	II	4		Complete
BREST 2		51-51-45N 24-01-45E	II	4		Complete
BRODY Launch Complex						
BRODY 1		50-06-00N 25-12-15E	IV	4		Complete
BRODY 2		50-12-46N 25-05-00E	I	4		Complete
BERESTECHKO		50-20-00N 25-05-30E	I	4		Complete

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR
DERAZHNYA Launch Complex						
DERAZHNYA 1		49-21-00N 27-26-30E	II	4		Complete
DERAZHNYA 2		49-26-15N 27-29-00E	II	4		Complete
KHMELNITSKIY		49-24-45N 27-08-45E	IV	4		Complete
DISNA Launch Complex						
DISNA		55-35-15N 28-16-00E	I	4		Complete
ZELKI		55-35-45N 28-24-30E	I	4		Complete
BORKOVICHI		55-41-45N 28-27-00E	II	4		Complete
DOLINA Launch Complex						
DOLINA 1		49-03-30N 24-03-30E	I	4		Complete
DOLINA 2		49-06-15N 24-08-30E	I	4		Complete
BOLEKHOV		49-06-45N 23-51-15E	IV	4		Complete
DROGOBYCH Launch Complex						
MEDENITSA		49-22-15N 23-45-30E	I	4		Complete
DROGOBYCH		49-25-30N 23-34-45E	I	4		Complete
STRYY		49-16-45N 23-43-00E	IV	4		Complete
DYATLOVO Launch Complex						
DYATLOVO		53-32-45N 25-16-45E	I	4		Complete
BEREZOVKA		53-35-30N 25-17-30E	I	4		Complete
ZBLYANY		53-35-45N 25-27-30E	II	4		Complete
GOMEL Launch Complex						
BORKHOV 1		52-18-30N 30-42-45E	II	4		Complete
BORKHOV 2		52-24-45N 30-39-00E	II	4		Complete
GRESK Launch Complex						
GRESK 1		53-14-15N 27-42-30E	I	4		Complete
GRESK 2		53-17-00N 27-40-45E	I	4		Complete
URECHYE		53-11-00N 27-58-30E	II	4		Complete
GROZNY Launch Complex						
SUNZHENSKOYE		43-08-15N 44-54-15E	I	4		Complete
NESTEROVSKAYA		43-11-30N 44-57-00E	I	4		Complete
ACHKHOY-MARTAN		43-10-30N 45-10-30E	IV	4		Complete

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	COMPLETED CONSTR
GUSEV Launch Complex						
GUSEV 1		54-41-30N 22-05-00E	I	4		Complete
GUSEV 2		54-44-00N 22-03-30E	I	4		Complete
GVARDEYSK Launch Complex						
GVARDEYSK 1		54-40-30N 21-07-30E	I	4		Complete
GVARDEYSK 2		54-45-15N 21-09-15E	I	4		Complete
JELGAVA Launch Complex						
IECAVA 1		56-35-30N 24-04-00E	II	4		Complete
IECAVA 2		56-39-45N 24-07-30E	II	4		Complete
IECAVA 3		56-33-00N 24-20-30E	IV	4		Complete
JONAVA Launch Complex						
KARMELAVA		54-57-15N 24-05-45E	II	4		Complete
JONAVA		55-01-00N 24-14-15E	II	4		Complete
KAMENETS-PODOLSKIY Launch Complex						
KAMENETS-PODOLSKIY		48-51-15N 26-42-30E	II	4		Complete
DUNAYEVTSY		48-55-15N 26-59-00E	II	4		Complete
KIVERTSY Launch Complex						
KIVERTSY 1		50-53-15N 25-31-00E	I	4		Complete
KIVERTSY 2		50-56-00N 25-36-15E	I	4		Complete
TROSTYANETS		50-58-30N 25-39-30E	II	4		Complete
KONKOVICHI Launch Complex						
PETRIKOV		52-10-30N 28-34-45E	I	4		Complete
KONKOVICHI		52-15-30N 28-37-45E	I	4		Complete
KOROSTEN Launch Complex						
KOROSTEN 1		50-51-45N 28-18-15E	II	4		Complete
KOROSTEN 2		50-52-15N 28-31-00E	II	4		Complete
KOZHANOVICHI Launch Complex						
KOZHANOVICHI 1		52-10-15N 27-51-30E	I	4		Complete
KOZHANOVICHI 2		52-11-30N 27-48-00E	I	4		Complete

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR
KRASKINO Launch Complex KRASKINO		42-44-00N 130-40-15E	II	4		Complete
KRASNOZNAMENSK Launch Complex VIESVILLE		55-01-30N 22-23-00E	I	4		Complete
RAGNIT		55-01-15N 22-11-15E	I	4		Complete
KREMOVO Launch Complex KREMOVO		44-01-24N 132-20-39E	I	4		Complete
LYALICHI		44-02-30N 132-26-26E	I	4		Complete
KURGANCHA Launch Complex KURGANCHA 1		39-37-45N 65-57-30E	I	4		Complete
KURGANCHA 2		39-37-30N 65-57-00E	I	4		Complete
TYM		39-35-15N 65-42-45E	IV	4		Complete
LIDA Launch Complex LIDA 1		53-47-30N 25-20-30E	I	4		Complete
LIDA 2		53-57-15N 25-27-45E	I	4		Complete
LUTSK Launch Complex LUTSK 1		50-46-45N 25-03-00E	I	4		Complete
LUTSK 2		50-50-30N 25-04-15E	I	4		Complete
VLADIMIR-VOLYNSKIY		50-48-30N 24-42-30E	IV	4		Complete
MARINA GORKA Launch Complex MARINA GORKA		53-26-30N 27-45-30E	II	4		Complete
MAYKOP Launch Complex KURDZHIPS KAYA		44-31-45N 40-00-45E	II	4		Complete
SHIRVANSKAYA		44-25-30N 39-54-00E	IV	4		Complete
MOLOSKOVITSY Launch Complex MOLOSKOVITSY 1		59-28-45N 29-06-00E	II	4		Complete
MOLOSKOVITSY 2		59-29-30N 29-12-15E	II	4		Complete
GURLEVO		59-25-00N 28-53-15E	IV	4		Complete
MUKACHEVO Launch Complex MUKACHEVO 1		48-18-45N 22-30-45E	I	4		Complete
MUKACHEVO 2		48-19-30N 22-37-15E	I	4		Complete

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR	
NADVORNAYA Launch Complex							
PARYSHCHE		48-37-45N 24-42-00E	I	4		Complete	
NOVA VES		48-39-30N 24-48-15E	I	4		Complete	
OTYNYA		48-47-30N 24-50-30E	IV	4		Complete	
OSTROG Launch Complex							
OSTROG 1		50-14-00N 26-43-15E	I	4		Complete	
OSTROG 2		50-17-15N 26-41-00E	I	4		Complete	
OSTROV Launch Complex							
ASANOVSHCHINA		57-31-45N 28-12-15E	I	4		Complete	
SHEVELEVO		57-37-00N 28-12-15E	I	4		Complete	
REDKINO		57-24-30N 28-26-00E	IV	4		Complete	
PAPLAKA Launch Complex							
PAPLAKA 1		56-24-00N 21-17-30E	I	4		Complete	
PAPLAKA 2		56-25-00N 21-16-45E	I	4		Complete	
PINSK Launch Complex							
IVANOVO		52-10-45N 25-41-15E	I	4		Complete	
MOTOL		52-12-30N 25-44-30E	I	4		Complete	
POLOTSK Launch Complex							
POLOTSK 1		55-22-30N 28-44-30E	II	4		Complete	
POLOTSK 2		55-24-15N 28-33-45E	II	4		Complete	
POSTAVY Launch Complex							
POSTAVY 1		55-09-45N 26-53-45E	II	4		Complete	
KOZYANY		55-20-30N 26-51-30E	II	4		Complete	
POSTAVY 2		55-06-15N 27-00-15E	IV	4		Complete	
PRUZHANY Launch Complex							
PRUZHANY 1		52-30-30N 24-08-45E	II	4		Complete	
PRUZHANY 2		52-33-30N 24-06-15E	II	4		Complete	
RAKVERE Launch Complex							
SIMUNA		59-08-45N 26-26-45E	II	4		Complete	
VAIKE MAARJA		59-11-15N 26-20-45E	II	4		Complete	

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR
RISTI Launch Complex						
RISTI 1		59-04-00N 24-04-30E	I	4		Complete
RISTI 2		59-07-45N 24-06-45E	I	4		Complete
RUZHANY Launch Complex						
KRUPA 1		52-47-45N 24-42-30E	II	4		Complete
KRUPA 2		52-49-15N 24-45-30E	II	4		Complete
SATEIKIAI Launch Complex						
SALANTAI 1		55-59-45N 21-38-15E	I	4		Complete
SALANTAI 2		56-02-15N 21-41-30E	I	4		Complete
ZEMAICIU KALVARIJA		56-01-45N 21-54-30E	IV	4		Complete
SIMFEROPOL Launch Complex						
MAZANKA		44-53-45N 34-20-00E	I	4		Complete
BALKI		44-57-00N 34-26-00E	I	4		Complete
SLONIM Launch Complex						
BYTEN 1		52-52-30N 25-21-30E	I	4		Complete
BYTEN 2		52-55-45N 25-22-15E	I	4		Complete
SOKAL Launch Complex						
SOKAL 1		50-22-45N 24-18-15E	I	4		Complete
SOKAL 2		50-27-15N 24-20-00E	I	4		Complete
SOKAL 3		50-20-15N 24-26-15E	IV	4		Complete
SOVETSK Launch Complex						
SLAVSK 1		54-59-15N 21-36-30E	I	4		Complete
SLAVSK 2		54-59-45N 21-28-30E	I	4		Complete
SUCHAN Launch Complex						
NOVITSKOYE		43-01-45N 133-17-00E	I	4		Complete
SEVERNYY SUCHAN		43-10-00N 133-20-05E	I	4		Complete
TAURAGE Launch Complex						
TAURAGE 1		55-10-15N 22-20-30E	I	4		Complete
TAURAGE 3		55-05-00N 22-20-00E	I	4		Complete

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TABLE 5. (Continued)

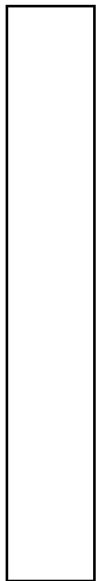
LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR
TORVA Launch Complex						
TORVA 1		57-56-00N 26-04-00E	I	4		25X1 Complete
TORVA 2		57-59-15N 26-05-00E	I	4		Complete
TSIRGULIINA		57-49-45N 26-12-30E	IV	4		Complete
UGOLNYY Launch Complex						
UGOLNYY		64-47-32N 177-56-15E	II	4		Complete
UKMERGE Launch Complex						
VEPRIAI		55-07-45N 24-38-30E	I	4		Complete
UKMERGE		55-11-00N 24-42-30E	I	4		Complete
UMAN Launch Complex						
MOLODETSKOYE		48-53-45N 30-27-45E	I	4		25X1 Complete
MANKOVKA		48-57-45N 30-23-45E	I	4		Complete
KISHENTSY		49-00-15N 30-13-45E	IV	4		Complete
USOVO Launch Complex						
OVRUCH 1		51-17-15N 28-16-15E	I	4		Complete
OVRUCH 2		51-18-30N 28-10-30E	I	4		Complete
LIPNIKI		51-12-15N 28-26-30E	II	4		Complete
UZHGOROD Launch Complex						
UZHGOROD		48-33-30N 22-13-15E	II	4		Complete
VORU Launch Complex						
VORU 1		57-46-00N 26-47-15E	II	4		Complete
VORU 2		57-49-00N 26-50-30E	II	4		Complete
VSELYUB Launch Complex						
VSELYUB 1		53-45-45N 25-43-00E	I	4		Complete
VSELYUB 2		53-48-00N 25-46-45E	I	4		Complete

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TABLE 5. (Continued)

LOCATION*	BE NUMBER	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	DATE OF LATEST PHOTOGRAPHY	ESTIMATED CONSTR	
YELSK Launch Complex	[REDACTED]				[REDACTED]		
YELSK 1		51-42-30N 29-12-30E	I	4		Complete	
YELSK 2		51-47-15N 29-18-15E	I	4		Complete	
ZAGARE Launch Complex							
ZAGARE 1		56-23-15N 23-19-15E	I	4		Complete	
ZAGARE 2		56-29-00N 23-20-45E	I	4		Complete	
LIELELEJA		56-24-30N 23-36-45E	IV	4		Complete	
ZHITOMIR Launch Complex							
ZHITOMIR 1		50-04-45N 28-15-45E	II	4		Complete	
ZHITOMIR 2		50-10-00N 28-16-15E	II	4		Complete	
BERDICHEV		50-05-30N 28-22-00E	II	4		Complete	
ZHMERINKA Launch Complex							
GNIVAN		49-09-00N 28-11-45E	II	4		Complete	
ZHMERINKA		49-10-15N 28-05-00E	II	4		Complete	
VINNITSA		49-17-30N 28-20-15E	IV	4		Complete	
ZNAMENSK Launch Complex							
ZNAMENSK 1		54-32-45N 21-11-15E	I	4		Complete	
ZNAMENSK 2		54-35-15N 21-07-30E	I	4		Complete	

*TDI site designators have been adopted for MRBM launch sites.

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Table 6. Summary Evaluation of Selected Launch Facilities, Kapustin Yar Missile Test Center

Complex/Area/Site	BE Number	Coordinates	Type of Site	Number of Positions		Site Negated		First Coverage		Latest Coverage		Stage of Construction on Last Usable Coverage		Estimated Status
				Soft	Hard	Date	Msn	Date	Msn	Date	Msn	Date	Msn	
Complex A														
Launch Site 1A1		48-42N 46-15E	R&D	1	--								Complete	Operational
Launch Site 1A2			R&D/Trng	1	--								Complete	Operational
Launch Site 2A1			R&D	--	1								Complete	Operational
Launch Site 2A2			R&D	--	1								Inactive	Inactive
Complex C														
Launch Site 1C1		48-36N 46-17E	Space R&D*	1	--								Complete	Operational
Launch Site 1C2			Probable Space	1	--								Complete	Operational
Launch Site 1C3			Probable Space	1	--								Complete	Operational
Launch Area 2C		48-35N 46-17E	R&D/Trng	2	--								Complete	Operational
Launch Area 3C		48-34N 46-17E	R&D/Trng	1	--								Complete	Operational
Launch Site 4C1		48-34N 46-17E	Type IV	--	4								Complete,	Undetermined
			MRBM _p										being modified	
Launch Site 4C2		48-33N 46-17E	Type IV	--	3								Complete	Operational
			IRBM _p											
Launch Site 5C1		48-32N 46-17E	Undet	2	--								Complete	Operational
Launch Site 5C2		48-32N 46-17E	--	2	--								Never completed	Abandoned
Complex E		48-46N 46-18E	Undet	1	--								Complete	Operational
Complex G		48-24N 46-17E	Trng	2	--								Complete	Operational
Complex H		48-48N 46-20E	Undet	2	--								Late	U/C

*R&D/Trng site on first coverage,

_p Prototype.

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TABLE 7. SUMMARY EVALUATION OF SOVIET FIXED FIELD SITES (SSM FIXED FIELD POSITIONS)

LOCATION*	BE NUMBER	COORDINATES	NEGATION DATE	FIRST OBSERVED	NO OF LAUNCH POSITIONS
AKHTYRKA Akhtyrka		50-19-30N 34-51-30E			4
ALUKSNE Lejasciems Gulbene		57-15-15N 26-41-15E 57-16-30N 26-54-30E			4 4
ANASTASYEVKA Anastasyevka		48-32-15N 135-31-45E			4
BALTA Kodyma		48-04-15N 29-18-30E			4
BARANO-ORENBURGSKOYE Sofiye Alekseyevskoye		44-12-00N 131-24-00E			3
BELOKOROVICHI Rudnya Zlotinskaya		51-08-30N 27-59-45E			4
BORSHCHEV Skala Podolskaya 1 Skala Podolskaya 2		48-53-30N 026-13-30E 48-52-30N 026-16-00E			4 4
BREST Pishcha Zamshany		51-35-15N 23-46-45E 51-50-05N 24-02-05E			4 4
BRODY Yazlovchik Stanislavchik		50-05-45N 25-02-00E 50-07-00N 24-56-30E			4 4
DERAZHNYA Khmelnitskiy Letichev 1 Letichev 2		49-25-00N 27-06-30E 49-22-45N 27-43-45E 49-25-15N 27-45-00E			2 4 4
DISNA Dernovichi Demidovo		55-47-45N 28-20-00E 56-01-15N 28-18-45E			4 4
DOLINA Berezhnitsa Rakuv		49-12-45N 23-57-30E 48-58-21N 24-05-35E			4 4
DYATLOVO Ruda Yavorskaya 1 Ruda Yavorskaya 2 Ruda Yavorskaya 3 Berezovka		53-23-15N 25-10-30E 53-23-15N 25-12-45E 53-23-15N 25-13-30E 53-23-15N 25-13-30E 53-42-30N 25-30-30E			4 5 4 4 4
GOMEL Gomel 1 Gomel 2		52-20-45N 30-51-30E 52-24-30N 30-50-30E			4 4

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TABLE 7. (Continued)

LOCATION*	BE NUMBER	COORDINATES	NEGATION DATE	FIRST OBSERVED	NO OF LAUNCH POSITIONS
GUSEV Tolminkemsk		54-22-15N 22-20-15E			4
GVARDEYSK Geroyskoye Vysokoye		54-45-45N 21-25-15E 54-44-30N 21-33-45E			2 4
JELGAVA Jelgava 1 Jelgava 2		56-38-45N 23-52-45E 56-44-15N 23-55-15E			2 4
JONAVA Kaisiadorys		54-59-30N 24-29-00E			4
KAMENETS-PODOLSKIY Yarmolintsy Vinkovtsy		49-12-00N 26-46-45E 48-58-20N 27-12-05E			4 4
KIVERTSY Kivertsy		50-50-00N 25-25-00E			4
KONKOVICHI Novoselki 1 Novoselki 2		52-23-00N 28-42-45E 52-25-45N 28-41-00E			4 4
KOROSTEN Litki 1 Yemilchino 1 Yemilchino 2 Litki 2		51-01-30N 28-27-45E 50-52-30N 27-53-00E 50-52-00N 27-53-00E 51-01-15N 28-24-15E			4 4 4 2
KOZHANOVICHI Lyudenevichi		52-18-00N 27-42-30E			4
KRASNOZNAMENSK Krasnoznamensk Sudargas		54-57-30N 22-35-00E 55-00-30N 22-35-00E			4 4
KREMOVO Manzovka		44-12-00N 132-34-00E			4
KURGANCHA Kurgancha		39-41-00N 65-59-00E			4
LIDA Vasilishki		53-44-00N 24-56-15E			4
LUTSK Gorokhov		50-35-45N 24-48-45E			4

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TABLE 7. (Continued)

LOCATION*	BE NUMBER	COORDINATES	NEGATION DATE	FIRST OBSERVED	NO OF LAUNCH POSITIONS
MARINA GORKA					
Shotsk 1		53-27-45N 27-48-00E			4
Shotsk 2		53-26-10N 27-49-30E			4
MAYKOP					
Tulskaya		49-31-15N 40-14-15E			4
Maykop		44-32-30N 39-57-45E			4
MOLOSKOVITSY					
Kotly 1		59-37-45N 28-41-30E			4
Kotly 2		59-39-15N 28-30-00E			4
NADVORNAYA					
Ivanovtsy		48-38-00N 24-54-15E			4
Gorokholina		48-45-15N 24-30-30E			4
OSTROG					
Slavuta		50-16-45N 26-57-45E			3
Shepetovka		50-12-30N 26-59-00E			4
Ostrog		50-22-30N 26-22-00E			4
OSTROV					
Shabany		57-23-45N 28-13-15E			4
PINSK					
Lychkovtsy		52-15-00N 25-21-45E			4
POLOTSK					
Plissa 1		55-12-30N 28-01-45E			3
Plissa 2		55-11-30N 27-54-45E			4
POSTAVY					
Sivtsy		55-09-30N 26-53-45E			1
Bogatoye		54-57-15N 26-28-45E			4
Kobylnik		54-56-30N 26-37-15E			4
PRUZHANY					
Strigovo		53-23-15N 24-14-30E			4
Shcherby		52-23-00N 24-10-00E			4
RAKVERE					
Tamsalu		59-08-45N 26-09-15E			4
Kadina		59-16-30N 26-10-15E			4
Tapa		59-16-45N 26-03-15E			2
RISTI					
Kloostri		59-13-00N 24-03-00E			4
RUZHANY					
Shchitno 1		52-43-15N 24-58-15E			4
Shchitno 2		52-41-00N 24-57-30E			4

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TABLE 7. (Continued)

LOCATION*	BE NUMBER	COORDINATES	NEGATION DATE	FIRST OBSERVED	NO OF LAUNCH POSITIONS
SATEIKIAI					
Telsiai		55-56-45N 22-07-00E			4
Alsedziai		56-00-15N 22-06-00E			4
SLONIM					
Byten		52-54-30N 25-22-00E			2
SMORGON					
Smorgon		54-34-45N 26-21-30E			2
TAURAGE					
Skaudvile		55-23-00N 22-31-00E			4
Taurage		55-10-00N 22-14-30E			2
TORVA					
Valga 1		57-50-15N 25-54-15E			4
Valga 2		57-55-15N 25-46-30E			4
UKMERGE					
Gelvonai		55-07-15N 24-43-45E			4
Balninkai		55-13-00N 25-02-00E			4
USOVO					
Luginy		51-08-00N 28-23-00E			4
YELSK					
Yelsk		51-50-45N 29-05-15E			4
Bolsuny		51-06-45N 28-27-00E			4
ZAGARE					
Dobele 1		56-40-00N 23-11-45E			4
Dobele 2		56-40-45N 23-06-45E			4
ZHITOMIR					
Berdichev		49-51-30N 28-25-30E			2
ZHMERINKA					
Vinnitsa		49-13-15N 28-18-45E			4
Bar		49-05-30N 27-43-00E			4
ZNAMENSK					
Pravdinsk		54-23-00N 20-59-45E			3
Domnovo		54-25-30N 20-53-00E			4
					<u>352</u>

*TDI site designators have been adopted for the fixed field sites, which are listed under the nearest permanent IRBM/MRBM complex.

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TABLE 8. SUMMARY EVALUATION OF SOVIET IRBM/MRBM SITES WITHOUT SUPPORT FACILITIES*

Complex/ Site	BE Number	Coordinates		Type	Site Negated		First Seen/Const Status			Last Msn Site Intact		Dismantling First Observed		Remarks	
					Date	Msn	Date	Msn	Status	Date	Msn	Date	Msn		
Belomorsk Ramoye	[REDACTED]	64-25-45N	34-18-15E	III IRBM	[REDACTED]										barracks-type bldgs & RIM bldg removed on [REDACTED] bunkers between never completed barracks-type bldgs removed
Fedorovka Traktovyy		53-25-15N	62-23-00E	III IRBM											barracks-type bldgs removed
Kraskino Kraskino		42-44-00N	130-40-15E	II MRBM											barracks-type bldgs, 1 small bldg, & a RIM bldg removed
Marina Gorka Marina Gorka		53-26-30N	27-45-30E	II MRBM											[REDACTED]
Uzhgorod Uzhgorod		48-33-30N	22-13-15E	II MRBM											no barracks-type bldgs seen associated with launch area
Zhuravka Zhuravka		54-36-30N	76-39-45E	III IRBM											barracks-type bldg & RIM bldg removed on [REDACTED] bldg at [REDACTED] facility removed since [REDACTED]

*Bayram-Ali, Sledyuki, and Rozhdestvenka have been deleted from this table.

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TABLE 9. COMPOSITION OF IRBM/MRBM COMPLEXES

No of Complexes	Containing Soft Sites Only			Containing Hard Sites Only			Containing Hard and Soft Sites				
	One Site, No Housing or Support Facility	One Site	Two Sites	Three Sites	One Site	Two Sites	Three Sites	Two Soft, One Hard Site	One Soft, One Hard Site	One Soft, Two Hard Sites	
IRBM											
3	3										
2				2							
5								1	25X1	3	
4					1	1	2				
MRBM											
3	3										
43		1	36	6							
21								20	1		
TOTALS	81	6	1	36	8	1	1	2	21	2	3

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Table 10. Soviet ICBM, IRBM, and MRBM Systems, Estimated Technical Characteristics and Performance

	SS-4	SS-5	SS-6	SS-7	SS-8	SS-9 1/	SS-10 2/	SS-11
Initial operational capability (IOC)								
Nominal maximum range 4/ (NRE, non-rotating earth)	1,020 nm	2,200 nm	6,000 nm	6,000 nm	6,000 nm	6,500 nm	6,000 nm	6,000 nm
Guidance	Inertial	Inertial	Radio inertial	Inertial	Radio inertial	Radio inertial 5/	Radio inertial	Radio inertial
Circular error probability (CEP)								
Initial	1.25 nm	1.0 nm	2.0 nm	1-2 nm	1.0 nm	0.5-1.0 nm	1.0 nm (approx)	1.0 nm (approx)
Improved/year	--	--	--	1.0 nm/1966	0.8 nm/1967	0.5 nm/1967	0.8 nm/1967	0.8 nm/1968
Re-entry vehicle weight (lbs)	3,200, ± 500	2,500-4,000	8,000, ± 1,000	3,000-4,000 6/	2,500-4,000	10,000, ± 1,000	4000-8000	1,000-2,000
Warhead weight (lbs)	2,200, ± 300	3000-4000	6,000, ± 1,000	2,400-3,200	2,000-3,200	8,000, ± 1,000	3,200-6,500	800-1,600
Gross lift-off weight (lbs)	88,000 (approx)	200,000 (approx)	500,000 (approx)	350,000 (approx)	165,000 (approx)	440,000 (approx)	275,000 (approx)	150,000 (approx)
Configuration	Single-stage	Single-stage	Parallel	Tandem 2-stage	Tandem 2-stage	Tandem 2-stage	Tandem 2-stage	--
Propellant	Storable liquid	Storable liquid	Non-storable liquid	Storable liquid	Non-storable liquid	Storable liquid	Liquid 7/	Storable liquid
Reliability rates: 8/								
Alert	80%	80%	80%	80%	80%	85%	85%	--
Launch	90%	85%	85%	85%	85%	80%	80%	--
Improved/year						85%/1967	85%/1968	
Inflight	90%	90%	85%	90%	90%	85%	85%	--
Improved/year						90%/1967	90%/1968	
Warhead	95%	95%	95%	95%	95%	95%	95%	--
Weapon System	75%	75%	70%	75%	75%	65%	65%	--
Improved/year						75%/1967	75%/1968	
Force	60%	60%	55%	60%	60%	55%	55%	--
Improved/year						65%/1967	65%/1968	

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Table 10. (Continued)

	SS-4		SS-5		SS-6	SS-7		SS-8		SS-9 ^{1/}	SS-10 ^{2/}	SS-11
Reaction time from ready condition: ^{9/}	Soft	Hard	Soft	Hard		Soft	Hard	Soft	Hard			
Condition 3	1-3 hrs	--	1-3 hrs	--	12 hrs (minimum)	1-3 hrs	--	1-3 hrs	--	--	--	--
Condition 2	15-30 min	--	15-30 min	--	1-2 hrs	15-30 min	--	30-45 min	30-45 min	--	--	--
Condition 1	5-15 min	3-5 min	5-15 min	3-5 min	1 hr (approx)	3-5 min	3-5 min	5-10 min	5-10 min	3-5 min	3-5 min	3-5 min
Hold time in ready condition ^{10/}	hrs- days	days	hrs- days	days	1 hr	hrs	days	1 hr (approx)	1 hr (approx)	days	days	days
Refire time ^{11/}	2-4 hrs	--	2-4 hrs	--	12 hrs (minimum)	2-4 hrs	--	2-4 hrs	--	--	--	--

- ^{1/} The SS-9 is believed to be intended for deployment primarily in hard sites.
- ^{2/} Tentative estimates based on limited data.
- ^{3/} If intense flight testing is renewed in the immediate future. The long stand-down in the SS-10 program makes its role in the ICBM force uncertain.
- ^{4/} Operational range is dependent on weight class of payload used.
- ^{5/} It is believed that the SS-9 has an additional all-inertial guidance capability with a CEP of 1-1.5 nm.
- ^{6/} More than one re-entry vehicle exists within these limits. Another, weighing as much as approximately 5,000 lbs (warhead 4,000 lbs) has been tested to a reduced range (4,700nm).
- ^{7/} Probably a storable propellant if used as an ICBM; probably cryogenic if related to a space program.
- ^{8/} These reliability rates may be too high since they may not sufficiently take into account the effect of Soviet operational methods and troop training, which are at least as important as technical characteristics in determining system reliability. We have little basis for estimating these effects.
- ^{9/} Readiness Condition 3 is believed to be the normal readiness condition for ICBMs deployed at soft sites, Condition 2 for cryogenic propellant missiles at hard sites, and Condition 1 for storable liquid and solid propellant missiles at hard sites; readiness Condition 3 is believed to be the normal readiness condition for MRBM/IRBMs deployed at soft sites, and Condition 1 for hard sites.
- ^{10/} An unfavorable environment could seriously degrade these hold times. Because of the protection afforded a missile in a hardened site, it is given a longer hold time than its soft counterpart. We believe the cryogenic properties of non-storable propellants probably limit these missiles to a hold time of about 1 hour.
- ^{11/} Refire capabilities are applicable to soft sites only. Estimated refire times are based on the assumption that the launch sites were designed specifically for an efficient refire capability and that no major refurbishment of ground support equipment or launch stand is necessary.

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