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November 1965

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EVALUATIONS OF SOVIET SURFACE-TO-SURFACE MISSILE DEPLOYMENT

21ST REVISION

A Report of the Deployment Working Group

of the

Guided Missile and Astronautics Intelligence Committee

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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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GUIDED MISSILE AND ASTRONAUTICS INTELLIGENCE COMMITTEE

DEPLOYMENT WORKING GROUP

MEMBERSHIP

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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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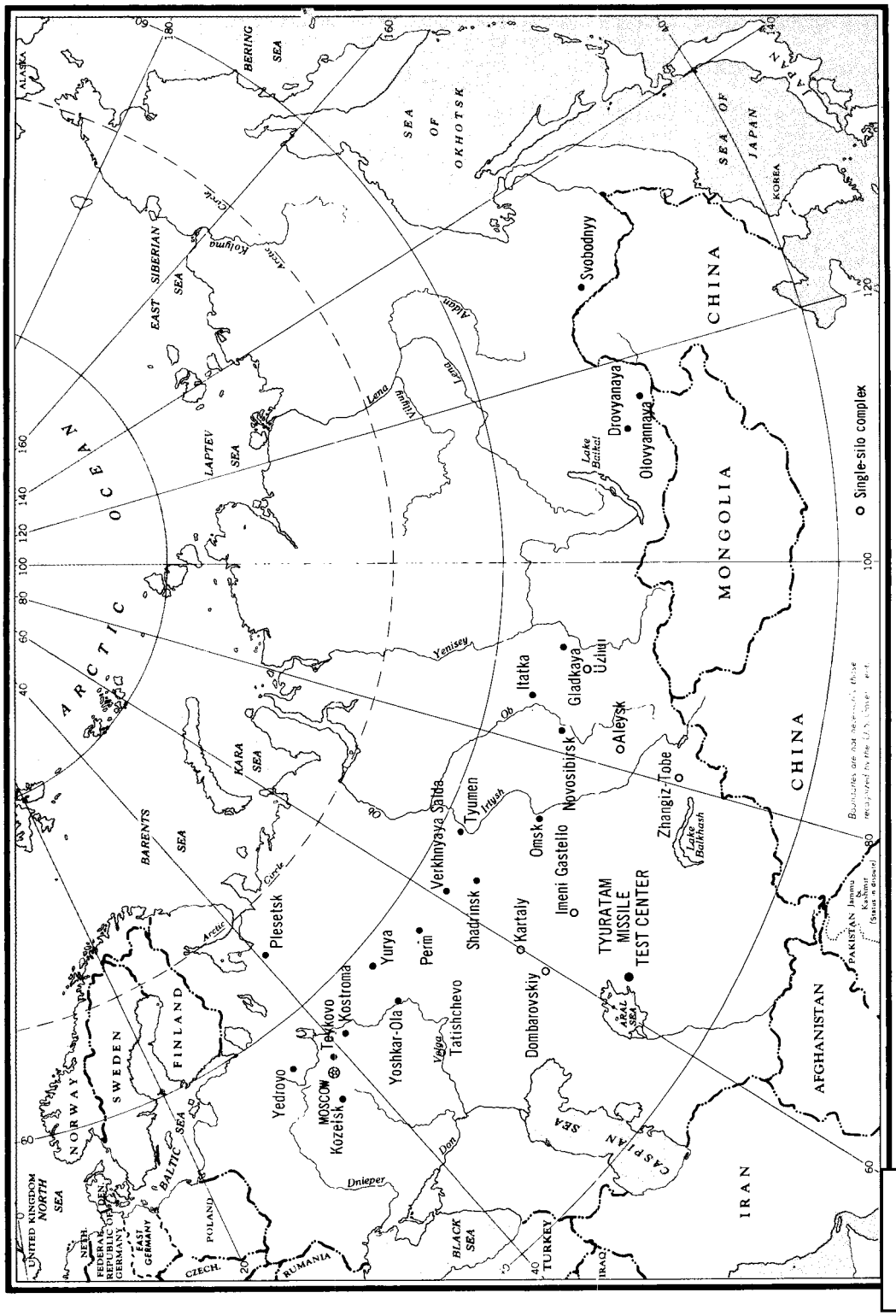

FIGURE 1. DEPLOYMENT OF SOVIET ICBM COMPLEXES.

INTRODUCTION

This report is the 21st 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.

[redacted]

and continuing analysis of 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. Cutoff date for information contained in this report is [redacted].

SOVIET ICBM DEPLOYMENT

Significant developments in the Soviet ICBM deployment program since publication of our 20th Revision are limited to the identification of additional single silos under construction at the deployed complexes and at the Tyuratam Missile Test Center.

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 409 confirmed and probable launchers, of which 150 are soft and 259 are hard. This represents an increase of 31 launchers over the number reported in our 20th Revision. Included in the hard launcher count are 181 single silos in various stages of construction. We are presently carrying 18 single-silo sites in the possible category, which are not reflected in the total launcher count.

Of the 409 confirmed and probable launchers, 224 are estimated to be operational, including 78 in a hard configuration. We believe that 34 of the 50 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 additions or changes at the complexes indicated:

ALEYSK, Launch Sites G(7), H(8), I(9), J(10) and Probable Launch Site K(11), Type IIIC, under construction

GLADKAYA, Launch Group F, Type IIID, Launch Site F8(15), confirmed, Launch Site F11, newly identified; Launch Group G, Type IIID, Launch Sites G3(18) and G4(21), confirmed, Possible Launch Sites G5, G6, and G7, newly identified

IMENI GASTELLO, Launch Sites L(12) and M(13), Type IIIC, under construction

OLOVYANNAYA, Launch Group F, Type IIID, newly identified Launch Sites F2(35), F3(36), F4(37), and F5(38), under construction; Launch Group G, Type IIID, Launch Sites G4(28), G5(29), G6(30), G7(31), G8(32), G9(33), and G10(34), under construction

TATISHCHEVO, Launch Group C, Type IIID, Launch Sites C10 and C11, under construction; Launch Group D, Type IIID, Probable Launch Site D4 and Launch Site D5, under construction

ZHANGIZ-TOBE, Launch Sites G(7), H(8), I(9), J(10), and possible Launch Site K(11), Type IIIC, 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 expand, and it is evident that deployment of both Type IIIC and Type IIID sites is continuing.

Type IIIC Sites

GENERAL

The confirmed deployment of Type IIIC single-silo sites is still confined to the Aleysk, Dombarovskiy, Imeni Gastello, Kartaly, Uzhur, and Zhangiz-Tobe complexes where a total of 72 confirmed and probable, and 4 possible sites has been observed under construction. Thirty-eight of the 72 confirmed and probable sites were begun in [redacted] To date there have been construction starts of 34 confirmed and probable, and 4 possible Type IIIC sites during [redacted] thus establishing that the pace of site activation [redacted] will at least equal that of [redacted]

At the time of our last revision, no new construction had been detected at the Aleysk Complex since [redacted] at Zhangiz-Tobe none had been identified since [redacted] These 2 complexes, plus Dombarovskiy, had been limited to 6 launch sites each. Our 20th Revision also reported the expansion of the Dombarovskiy Complex from 6 to 10 launch sites. The detection of new launch sites under construction since our last revision brings the Aleysk Complex up to 11 confirmed and probable launch sites and the Zhangiz-Tobe Complex up to 10 confirmed and 1 possible launch site.

Three of the identified Type IIIC sites at deployed complexes, Launch Sites B(2) and F(6) at Aleysk and F(6) at Uzhur, are now assessed as being in the late stage of construction.* The length of time that these sites have been under construction varies from a low of 15 months for Launch Site F(6) at Aleysk to a high of 22 months for Launch Site F(6) at Uzhur. This points up the fact that each Type IIIC site will have to be evaluated individually, as there does not appear to be any consistent relationship between the total time a site has been under construction and the stage of construction achieved during that period.

*Since the cutoff date of this revision additional Type IIIC and IIID sites have been detected. As of [redacted] we are carrying a total of 74 confirmed and probable and 4 possible Type IIIC launch sites, and 117 confirmed and probable and 14 possible Type IIID sites. These additions will be reflected in the tables and discussed in our next revision.

*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 backfilling and grading, and silo door may be apparent; complete, final configuration apparent; operational, equipment installed and checked out (estimated).

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ALEYSK COMPLEX

The Aleysk Complex was covered by [redacted]. The most significant development was the identification of 5 additional launch sites under construction, which now brings to 11 the total confirmed and probable sites at this complex. The quality of the photography did not permit determination of the construction status of any of the newly identified sites. The new sites have been designated G(7), H(8), I(9), J(10), and Probable Launch Site K(11). All but Launch Site H(8) can be negated on [redacted], and were first visible on [redacted] Launch Site H(8) can be negated on [redacted] and was first visible on [redacted]

Launch Site A(1) remains in a midstage of construction. Between the silo and the rectangular earthen mound is a circular-shaped excavation, and to the north of the silo is another excavation containing 3 linear objects. A loop road is under construction within the site. Examination of other Type IIIC sites reveals that the loop road reaches the silo via the rectangular earthen mound, regardless of the initial direction of approach. It is believed that any loading constraint is along the longitudinal axis of the rectangular earthen mound. Launch Site B(2) is now in a late stage of construction (Figure 3); an object [redacted] is on the rectangular earthen mound adjacent to the silo. Launch Site C(3) remains in a midstage of construction. An excavation containing 10 or 11 linear objects is located between the silo and the control building at the apex of the L-shaped electronic facility. A loop road is under construction within the site. At Launch Site F(6) 2 concentric scaffold-like rings are visible at the top of the silo structure (Figure 4). The outer ring is 12 sided and preliminary measurements indicate an 80-foot diameter; the inner ring is 40 feet in diameter. This type of structure has never been noted at any other Type IIIC site and its function has not been determined. There is no evidence of construction of an L-shaped electronic facility or a control facility at F(6) and the site is now considered to be in a late stage of construction.

Additional details of activity at the Aleysk Complex were provided by both [redacted] The rail-to-road transfer point has been expanded considerably, and now consists of 2 large transshipment buildings, 3 arch-roofed buildings, 1 clerestory building, and 13 to 15 other buildings. The entire area is fenced. Road improvement is apparent throughout the complex.

DOMBAROVSKIY COMPLEX

Dombarovskiy has not been covered by [redacted] photography since our last revision.

IMENI GASTELLO COMPLEX

The Imeni Gastello Complex was covered [redacted] Two new Type IIIC sites, designated Launch Sites L(12) and M(13), have been detected at this complex. Launch Site L(12) can be negated on [redacted] and was first visible on [redacted] Launch Site M(13) can be negated [redacted] and was first visible on [redacted] Launch Site L(12), located approximately 20 nautical miles south of the complex support facility, is in an early stage of construction (Figure 5). The site consists of an excavation and adjacent spoil piles, but no security fence is visible. Four small support buildings are located 2,500 feet southwest of the excavation. Launch Site M(13), located approximately 20 nautical miles west-southwest of the complex support facility, consists of an excavation and adjacent spoil

piles (Figure 6). No security fence is visible. About 2,000 feet northwest of the site are 4 small support buildings. This site is also in an early stage of construction.

Seven new large buildings have been added to the complex support facility. No significant changes were observed at Launch Sites A(1) through K(11), with the exception of Launch Sites G(7), H(8), and I(9) which have now progressed to the midstage of construction.

KARTALY COMPLEX

The Kartaly Complex was covered by Mis- and no significant changes were observed. Launch Site J, previously carried as possible, is now considered probable and designated Probable Launch Site J(12). Possible silo liners were noted at Launch Sites A(1), B(2), and D(4).

UZHUR COMPLEX

covered the Uzhur Complex, and no significant changes were noted. Backfilling is well advanced at Launch Site A(1), but has not yet reached ground level. Launch Site F(6) is now in the late stages of construction and Launch Site L(12) has progressed to the midstage. There is a large excavation about 200 feet southwest of the silo structure at Launch Site L(12).

ZHANGIZ-TOBE COMPLEX

Highlight of the coverage of the Zhangiz-Tobe Complex on was the detection of 4 confirmed and 1 possible Type IIIC sites under construction, which brings the total at this complex to 10 confirmed and 1 possible launch sites. The newly detected sites have been designated Launch Sites G(7), H(8), I(9), J(10) and Possible Launch Site K(11). All but Possible Launch Site K(11) can be negated Possible Launch Site K(11) can be negated on Launch Sites G(7) and H(8), which are in mid and early stages of construction, respectively, were first observed on Launch Sites I(9) and J(10), which are in a midstage of construction, were first observed on

Launch Site G(7), located 14 nautical miles northwest of the complex support facility, is in the midstage of construction and consists of a square excavation containing an apparent silo coring (Figure 7). A rectangular mound is on the northwest side of the excavation, and ground scarring and track activity extend approximately 2,500 feet to the southeast.

Launch Site H(8), consisting of a square excavation with 1 or possibly 2 earthen ramps, is located 16 nautical miles north-northwest of the complex support facility (Figure 8). No security fencing is visible, and there is a rectangular mound on the northwest side of the excavation. The site is in an early stage of construction. Launch Site I(9) is in a midstage of construction (Figure 9). Launch Site J(10) consists of a square excavation with 2 earthen ramps (Figure 10). A square mound is on the southeast side of the excavation and pieces of equipment and ground scarring are apparent. The site is in a midstage of construction.

At Launch Site A(1), which is in the midstage of construction, a building is being constructed in an excavation at the apex of the L-shaped electronic facility (Figure 11). There were no significant developments at the remaining Type IIIC sites in the Zhangiz-Tobe Complex.

Type IIID Sites

GENERAL

We have identified a total of 109 confirmed and probable, and 14 possible Type IIID launch

sites at the Drovyanaya, Gladkaya, Olovyannaya, Perm and Tatishchevo complexes, an increase of 18 since our 20th Revision. We are continuing our estimate of 14 launch groups at the complexes associated with Type IIID site deployment and, although we believe that each group will eventually contain 10 silos, we are still unable to identify the specific sites associated with each group.

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

DROVYANAYA COMPLEX

This complex was covered by [redacted] provided identification only. No new launch sites have been detected at the Drovyanaya Complex since our last revision. Launch Group G is now considered to be in the late stages of construction, but Launch Group H remains in a midstage of construction.

GLADKAYA COMPLEX

The Gladkaya Complex was covered by [redacted] One new Type IIID site was identified in Launch Group F and 3 possible sites in Launch Group G. The site previously identified as Launch Site F9 (13) has been removed from the inventory; a newly identified site, initially designated Launch Site F11, has been redesignated Launch Site F9 (22). Launch Site F9 (22) can be negated on [redacted] and was first observed in an early stage of construction on [redacted] Latest coverage indicates that F9(22) is now in a late stage of construction. Launch Site F8(15) was confirmed on [redacted] and there are now a total of 9 sites in Launch Group F. Six of the 9 sites are now in the late stages of construction. In Launch Group G, Launch Sites G3(13) and G4(21) can now be confirmed. In addition, 3 newly identified sites in Launch Group G have been designated as Possible Launch Sites G5, G6, and G7. Launch Group G now consists of 5 possible and 2 confirmed launch sites. There is still no evidence of a control facility or an L-shaped electronic facility at either Launch Group F or G.

OLOVYANNAYA COMPLEX

Highlight of the coverage of the Olovyannaya Complex on 2 of the 4 photographic missions since our last revision was the identification of 11 new Type IIID single-silo sites. Seven of the newly identified sites apparently complete Launch Group G and have been designated Launch Sites G4(28) through G10(34), respectively. Launch Sites G4(28), G6(30), G9(33) and G10(34) can be negated on [redacted] Launch Site G5(29) can be negated on [redacted] and was first observed in an early stage of construction on [redacted] Launch Sites G7(31) and G8(32) can be negated on [redacted] and were first observed [redacted] The 4 other newly identified sites have been tentatively designated as Probable Launch Sites F2(35) through F5(38). These sites can be negated [redacted] and were first observed on [redacted] All are in the early stages of construction, except F5(38) which is in the midstage.

Launch Groups D, E, and G now have 10 launch sites each but there are only 5 launch sites associated with Launch Group F to date. A control bunker and an L-shaped electronic facility are confirmed at Launch Site D7 in Launch Group D. At Launch Site E1 in Launch Group E, a control bunker is confirmed and there is a possible L-shaped electronic facility. Probable control bunkers are located at Launch

Sites F1 and G1 in Launch Groups F and G.

PERM COMPLEX

Partial coverage of the Perm Complex on [redacted] permitted identification only of the complex support facility, Launch Site A1, and Launch Site G1(15) in Launch Group G.

TATISHCHEVO COMPLEX

The Tatishchevo Complex was covered by [redacted] our last revision. This coverage resulted in the identification of 4 new Type IIID launch sites. [redacted] 2 Type IIID sites were identified and tentatively designated Probable Launch Sites C10 and C11. At that time it could not be determined whether these 2 sites were associated with existing launch groups or were parts of a new group. It was subsequently established that Launch Site C10 was part of Launch Group C, and, because of its proximity, that Launch Site C11 was part of Launch Group D. Launch Site C11 was therefore redesignated Launch Site D1.

Launch Site C10 can be negated on [redacted] and was first observed in an early stage of construction on [redacted] Launch Site D1 (38) can also be negated on [redacted] and was first observed in an early stage of construction on [redacted] 2 additional Type IIID sites were identified and designated as Probable Launch Site D4 (41) and Launch Site D5 (42). Both sites can be negated on [redacted] and were first noted on [redacted] A total of 32 Type IIID sites has now been identified at the Tatishchevo Complex; 10 in Launch Group A, 10 in Launch Group B, 8 in Launch Group C, and 4 in Launch Group D. Launch Group C has now progressed from an early to midstage of construction. At Launch Group A, backfilling is apparently complete at all sites. The reexcavation activity at Launch Site A1 (1) is still evident, but no determination can be made as to the reason for it. Launch Site A1 (1) contains a control bunker and an L-shaped electronic facility. A probable support/control facility is under construction at Launch Site B2 (13) in Launch Group B.

OTHER ACTIVITY AT DEPLOYED COMPLEXES

Kozelsk Complex

In our 18th Revision we indicated an area of new activity located about 14 nautical miles south-southwest of the complex support facility. It consisted of 2 separate areas of ground scarring, 1 Y-shaped and the other a plus configuration. It has now been determined that neither of these areas has any ICBM launch association.

[redacted]

Plesetsk Complex

[redacted] a new interferometer site (Figure 14) was identified immediately north of the administration and housing area at the Plesetsk Complex. The site is in the very early stages of construction and, when complete, will be L-shaped with 2 intersecting base legs approximately 2,150 feet in length, oriented [redacted] (plus or minus 5 degrees), respectively. The fa-

cility apparently will include at least 7 antennas along the base legs, with 2 additional antennas off-set from the central antenna at the intersection of the legs. A large control bunker, approximately 800 feet south of the central antenna position, will have 2 cable conduits extending to the terminal antenna position at the extremity of each leg. This facility appears to be similar to installations in later stages of construction at Tyuratam and Kapustin Yar. Because of its distance from known launch areas, preliminary assessment of this facility indicates that it will provide a highly accurate instrumentation site. However, the use of this installation as a guidance facility cannot be ruled out. The site was not present on [redacted]

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TYURATAM MISSILE TEST CENTER

Test Range Facilities

The Tyuratam Missile Test Center (Figure 15) was covered by [redacted] Highlights of these coverages included the identification of a new single silo under construction at Launch Complex I; determination that all launch sites in Launch Group L have a clean finished look, although no silo doors can be identified; identification of the previously reported new construction activity 6 nautical miles west of Launch Complex D as a probable storage area; and identification of new construction activity 3.2 nautical miles south-southwest of the assembly and checkout building at Launch Complex J.

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There were no significant developments at Launch Sites A3 (15), B2 (16), and I (14). On [redacted] however, a new single silo under construction was identified approximately 7,600 feet north-northeast of the silo at Launch Complex I (Figure 16). The construction activity consists of an excavation approximately 140 by 110 feet, with probable coring in the center. An earthen rectangle 275 by 125 feet is adjacent to the north side of the excavation and an earthen square 140 by 140 feet is adjacent to the south side of the excavation. The configuration appears to be typical of the Type IIIC sites; however, if the rail spur at Complex I is extended on its present azimuth, it will intercept the excavation. As a result of the identification of this new launch site, the original silo at Launch Complex I is now designated Launch Site I1 (14) and the newly identified silo under construction is designated Launch Site I2. There are 2 areas of suspect activity near the new silo; one approximately 4,300 feet north-northwest, and the other about the same distance to the west. Additional coverage of these suspect areas is required to determine if they are associated with launcher construction.

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In our 19th Revision we reported the continuing construction activity 1,000 feet east of Launch Site B1(2), which consisted of 4 buildings under construction including 1 clerestory building approximately 270 feet in length. The 4 buildings now appear to be complete and the rail line has been extended to the clerestory building.

[redacted] a probable missile was erected on Launch Site C3 at Launch Complex C. The specific type of vehicle was not identifiable, but Complex C has long been associated with the SS-7 ICBM and it is possible that the erected missile may have been the SS-7 which was fired to Kamchatka on [redacted] days after coverage was obtained. In addition, an earth-mounded building with rail entering it has been constructed adjacent to the south side of the 2 missile-ready buildings in the support area. This building is

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similar to those with rails entering at Launch Complex H (8). The first evidence of construction was on [redacted]

The area of construction activity approximately 6 nautical miles west of Launch Complex D is identified as a probable storage area (Figure 17). The area is double fenced and contains 20 small evenly spaced structures, 7 of which are probably earth mounded. The road has been extended from the complex main road to an area of construction activity south of Launch Site D2 (9). Approximately 12 shallow excavations have been dug on the southeast side of D2 in the vicinity of the fenceline.

No significant developments have taken place at Launch Complexes E(6), F(5), and H (8) since our last revision.

Launch Complex G (Figure 18) was covered [redacted] At Launch Site G1/G2 (7) an erected missile was noted on Pad G2 on [redacted] Both gantrys were in position to the rear of the launch pads, and a linear object appeared to be positioned behind the gantry at Pad G1. On [redacted] a rail car approximately 60 feet long was on the rail in front of the missile-ready building at Pad G2. At Launch Site G3/G4 (11) the gantrys were noted in various positions on the different missions, but there was no evidence of missiles or missile components. Unidentified rail cars were noted on the rails to the rear of the pads; one to the rear of Pad G3 was 120 feet long, and another to the rear of Pad G4 was 95 feet long. At Launch Site G7(18) earth has been mounded to form an access ramp on the north side of the launch silo. The legs of the L-shaped electronic facility have been backfilled and the control building has been backfilled on 3 sides. At Launch Site G8/G9 (19) an object 90 feet long is on the access road to the silos, inside the security fencing.

Construction activity continues at Launch Complex J (Figure 19). Of particular interest is the continued construction of the J1 and J2 launch positions. It now appears that these sites will be very similar in configuration. The excavations at both positions have been nearly identical in shape and depth, and similar construction procedures have been used at both. There are now 9 buildings between J1 and J2, and the footings for several more. At least 1 of the buildings appears to be earth covered, and the others appear complete and probably will be earth covered. The probable gantry tracks have been extended approximately 1,500 feet toward J1 and J2. There is a line of probable rail cars on the rail spur serving J2. Construction continues on the multistory buildings southwest of the missile assembly and checkout building. An area of unidentified construction is located 3.2 nautical miles south-southwest of the assembly and checkout building. Ditching connects this activity to Complex J.

At Launch Site K1/K2 (13) the K1 position appears completely backfilled and a cylindrical object is lying on the access ramp on the north side of the silo; the K2 position appears partially backfilled and a similar cylindrical object is nearby. At Launch Site K3 (20) a narrow linear mound or ditch connects a point near the silo with an earth-mounded building to the southwest.

At Launch Group L (21-30), the prototype for deployed Type IIID launch groups, the individual sites have a clean finished look but no silo doors can be identified. Some of the cable ditches connecting the sites are still open and the L-shaped electronic facility at Launch Site L1 (29) has not yet been backfilled. There is also evidence of construction of an improved road network which will probably connect all the launch sites in the group.

In our 19th Revision we reexamined the area

of unidentified construction activity west of Launch Complex G and south of [redacted] Additional details of this area were provided by [redacted] It appears that additional construction, possibly roofing, is underway between the parallel wings of the H-shaped building. The construction activity southwest of the H-shaped building was evident prior to [redacted] Although the rectangular pattern of ditching was not visible, it appears that the clearing and grading of the area was in progress on [redacted] The purpose of the area of construction activity and the H-shaped building is still undetermined.

Test Range Activity

Flight test activity was heavy throughout the period from [redacted] there being a total of 16 firings from Tyuratam to the Klyuchi Impact Area on Kamchatka and the Pacific Impact Area. No SS-6 or SS-10 launch operations were identified during the period. SS-7 firings identified on [redacted] apparently involved limited R&D testing and troop training. A launch on [redacted] identified as either an SS-7 or SS-9, was a failure. SS-9 firings to the Pacific Impact Area took place on [redacted] and to Kamchatka on [redacted] Successful firings of the SS-8 to the Klyuchi Impact Area on [redacted] were probably concerned with troop training. The highlight of all this activity, however, involved the increased rate of firing of the SS-11. There were 6 SS-11s fired during this period, 2 of which were failures; the SS-11 totals now read 11 firings, 4 of which were failures.

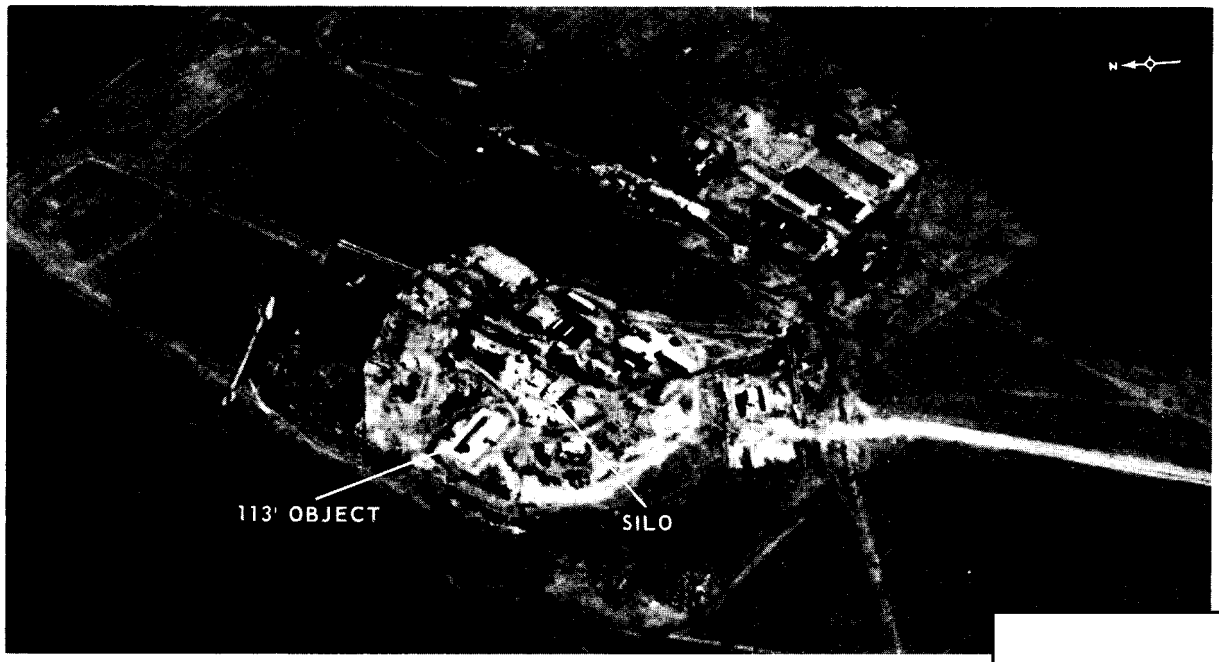

FIGURE 3. LAUNCH SITE B(2), ALEYSK ICBM COMPLEX.

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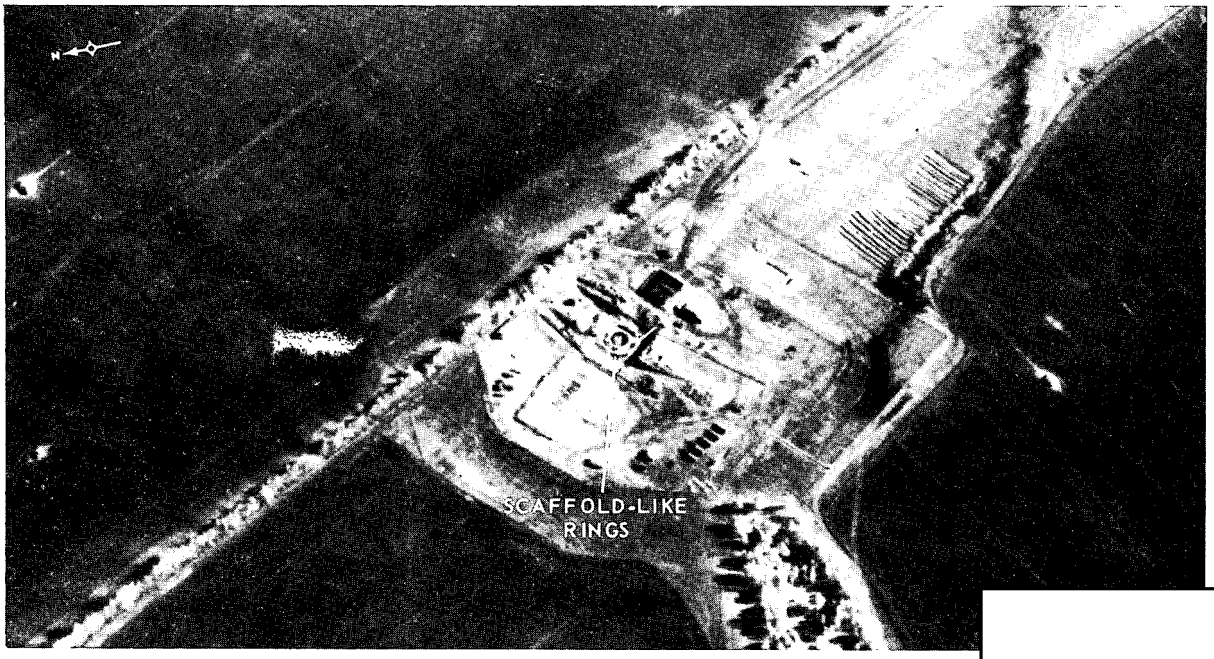

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FIGURE 4. LAUNCH SITE F(6), ALEYSK ICBM COMPLEX.

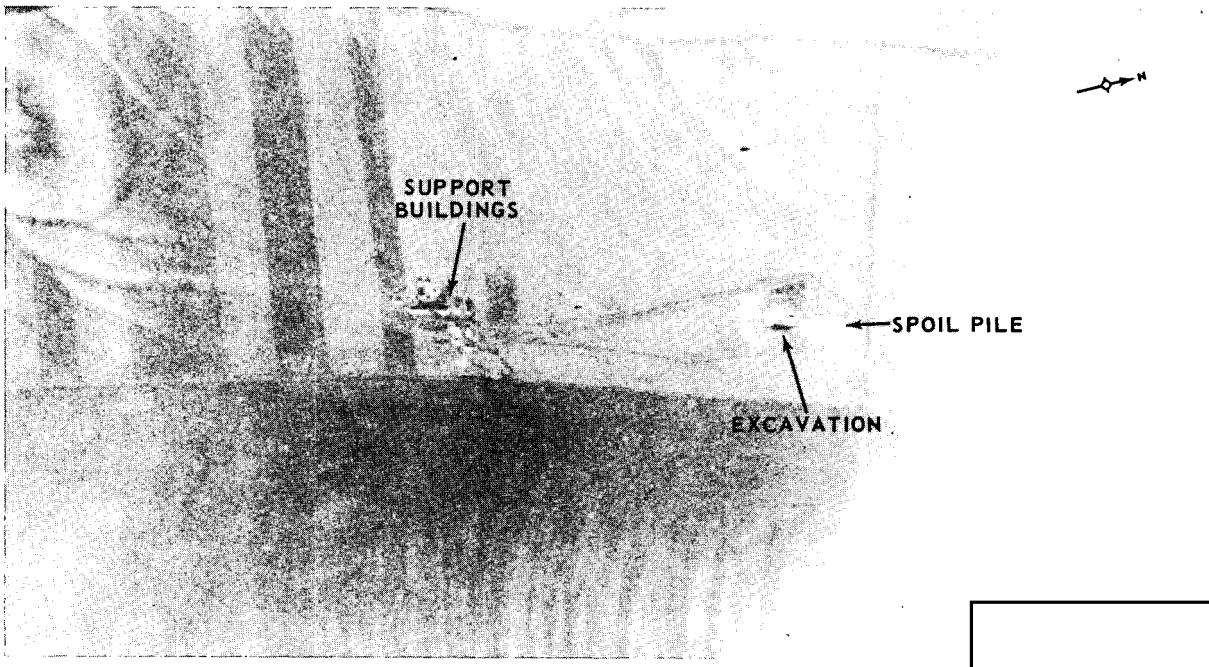

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FIGURE 5. LAUNCH SITE L(12), IMENI GASTELLO ICBM COMPLEX.

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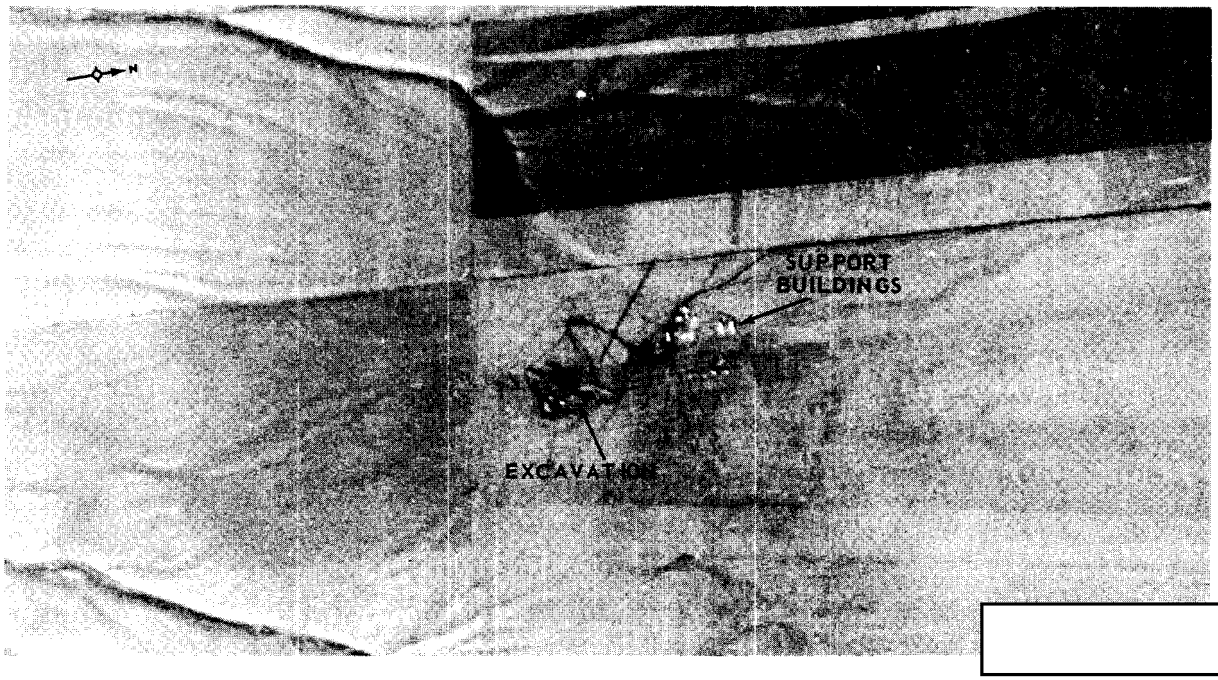

FIGURE 6. LAUNCH SITE M(13), IMENI GASTELLO ICBM COMPLEX.

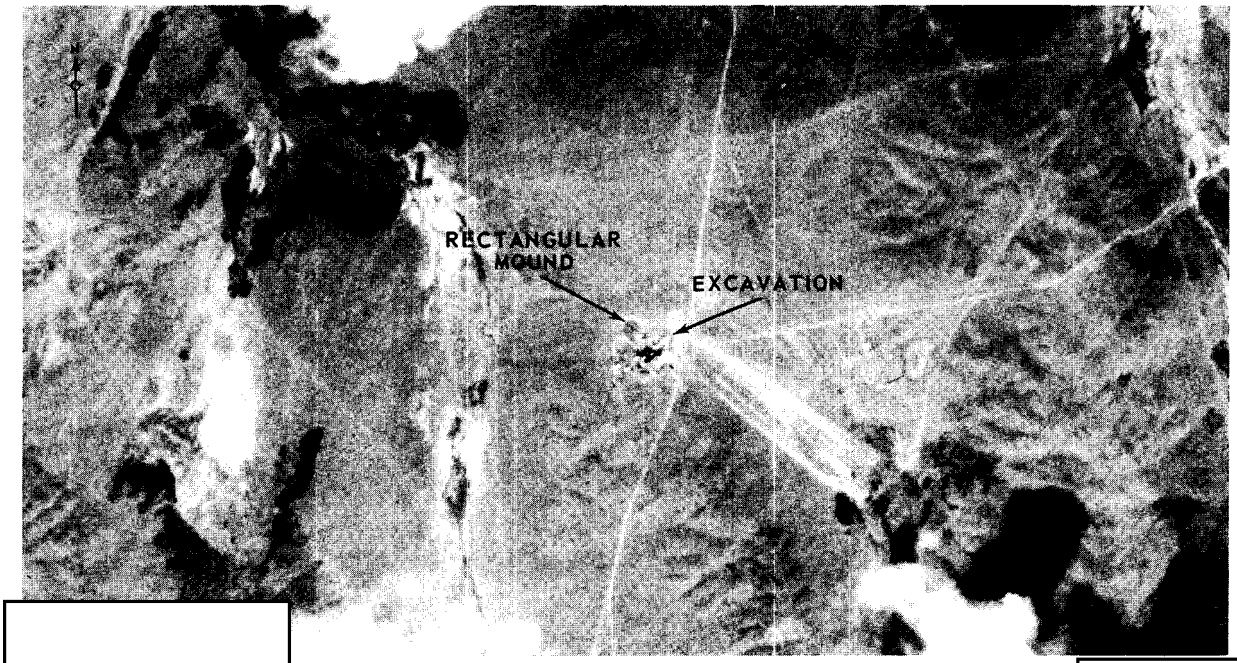

FIGURE 7. LAUNCH SITE G(7), ZHANGIZ-TOBE ICBM COMPLEX.

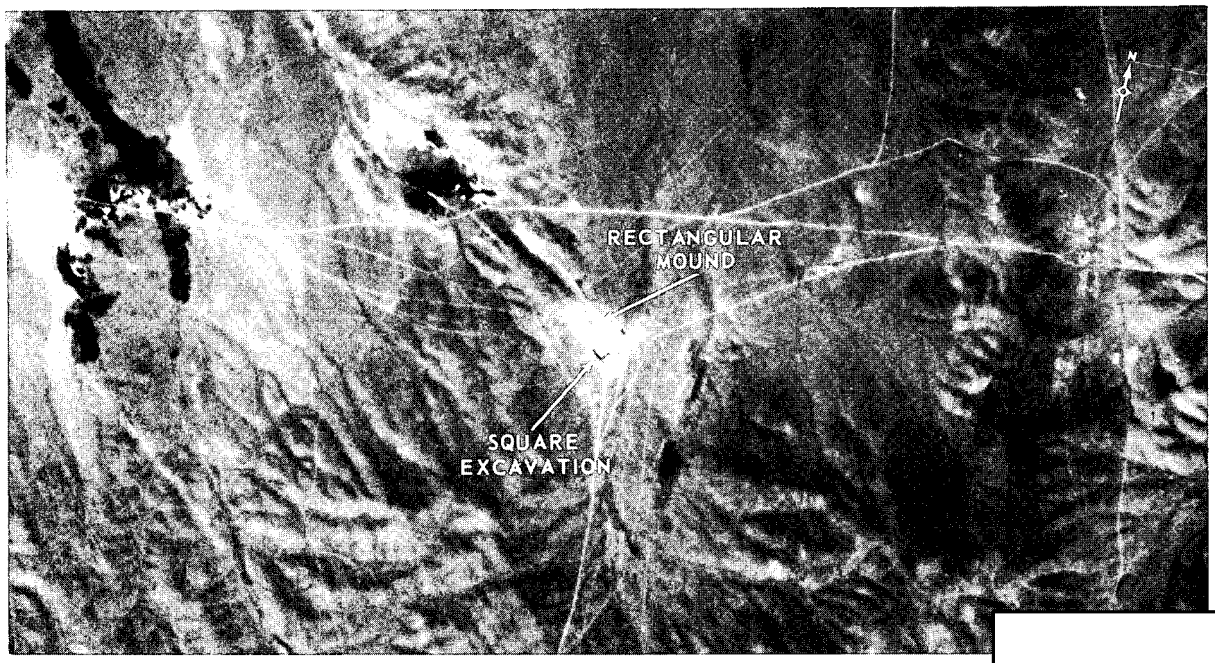

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FIGURE 8. LAUNCH SITE H(8), ZHANGIZ-TOBE ICBM COMPLEX.

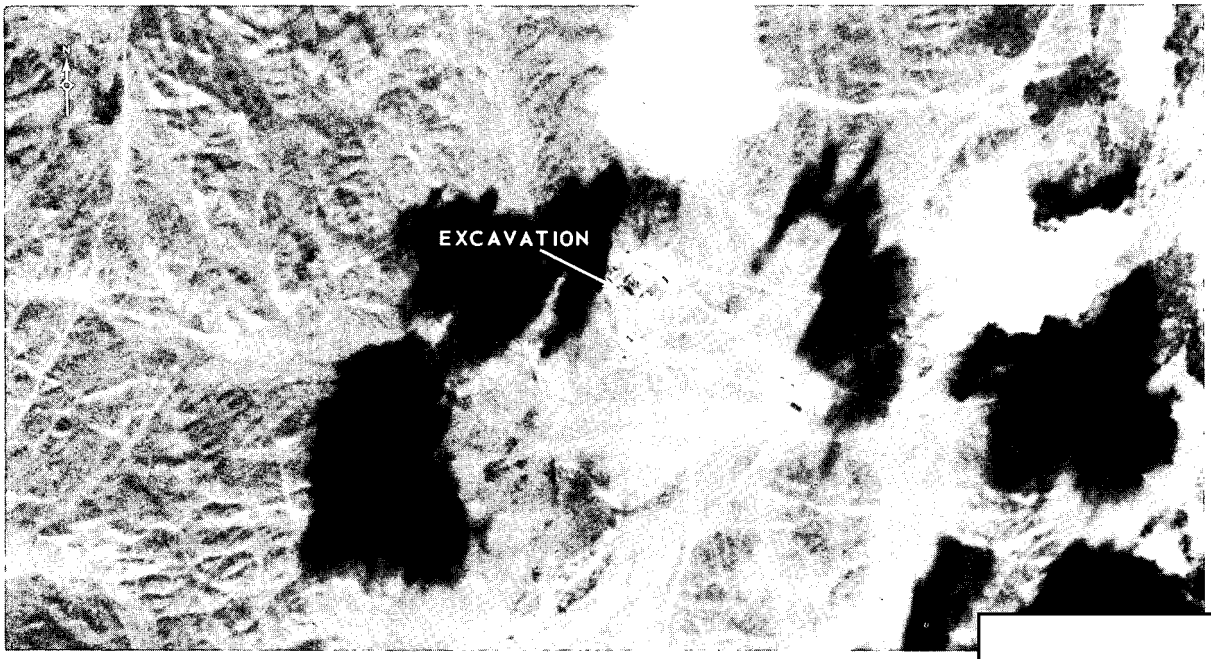

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FIGURE 9. LAUNCH SITE I(9), ZHANGIZ-TOBE ICBM COMPLEX.

25

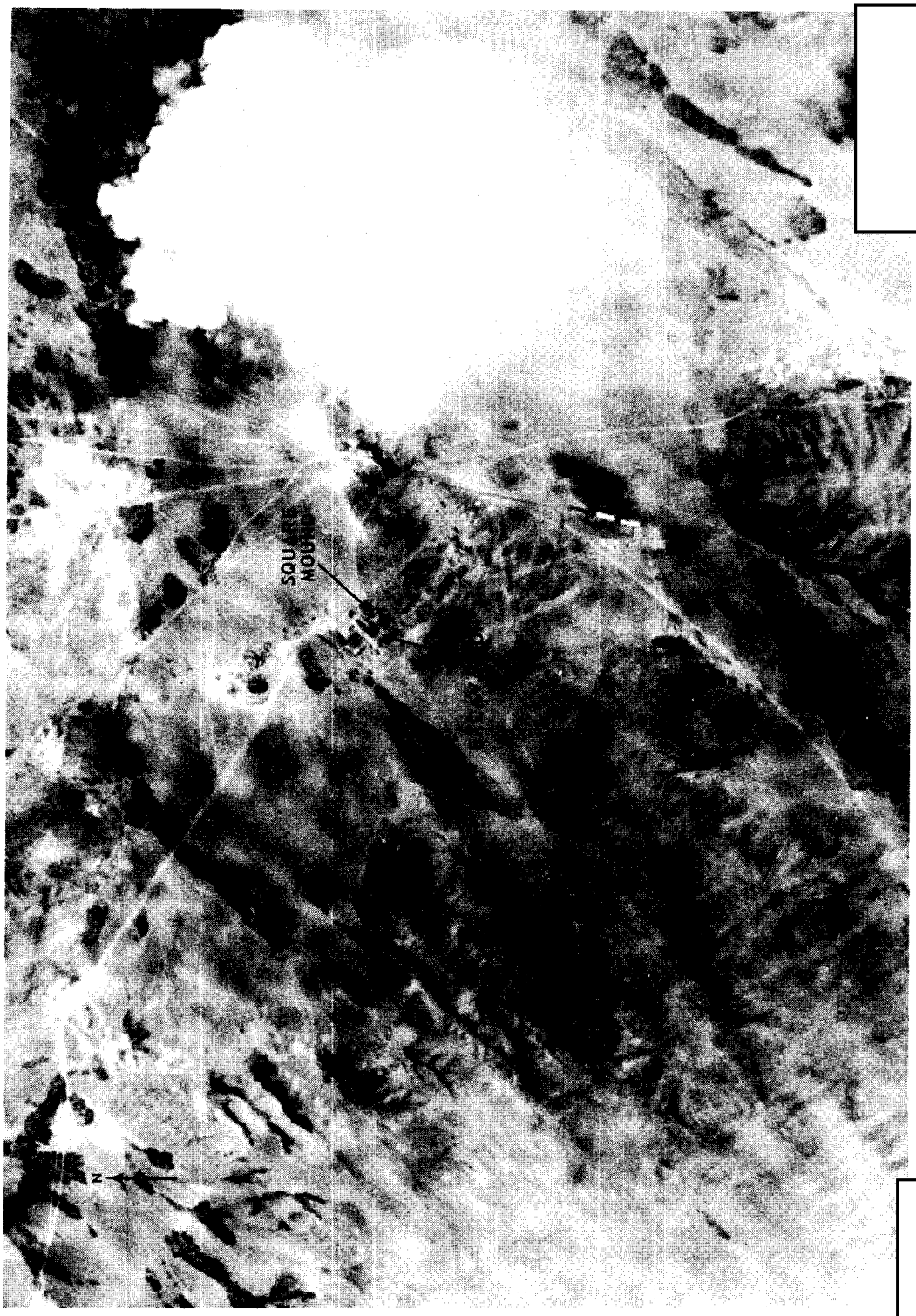


FIGURE 10. LAUNCH SITE J(10), ZHANGIZ-TOBE ICBM COMPLEX.

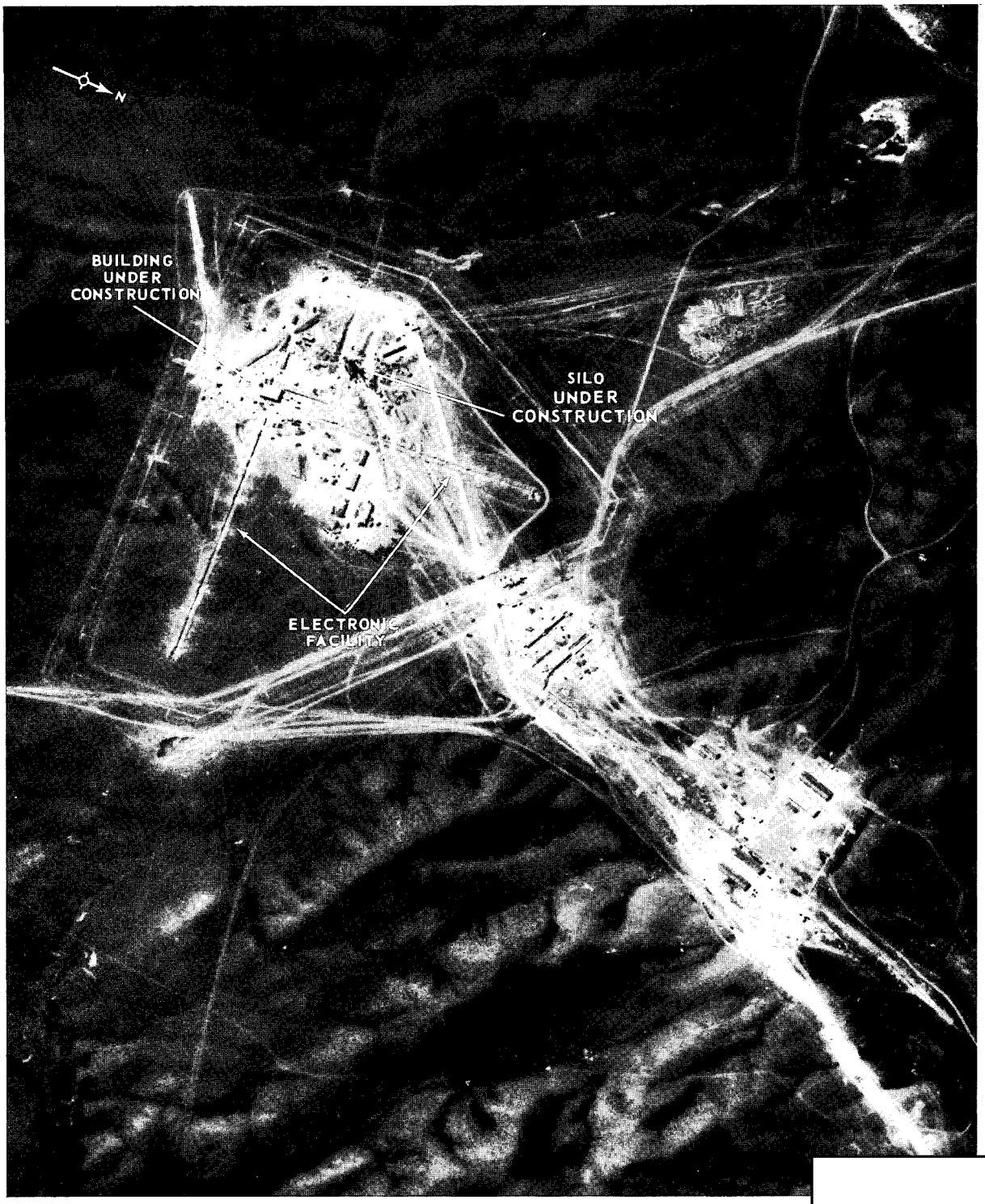


FIGURE 11. LAUNCH SITE A(1), ZHANGIZ-TOBE ICBM COMPLEX.

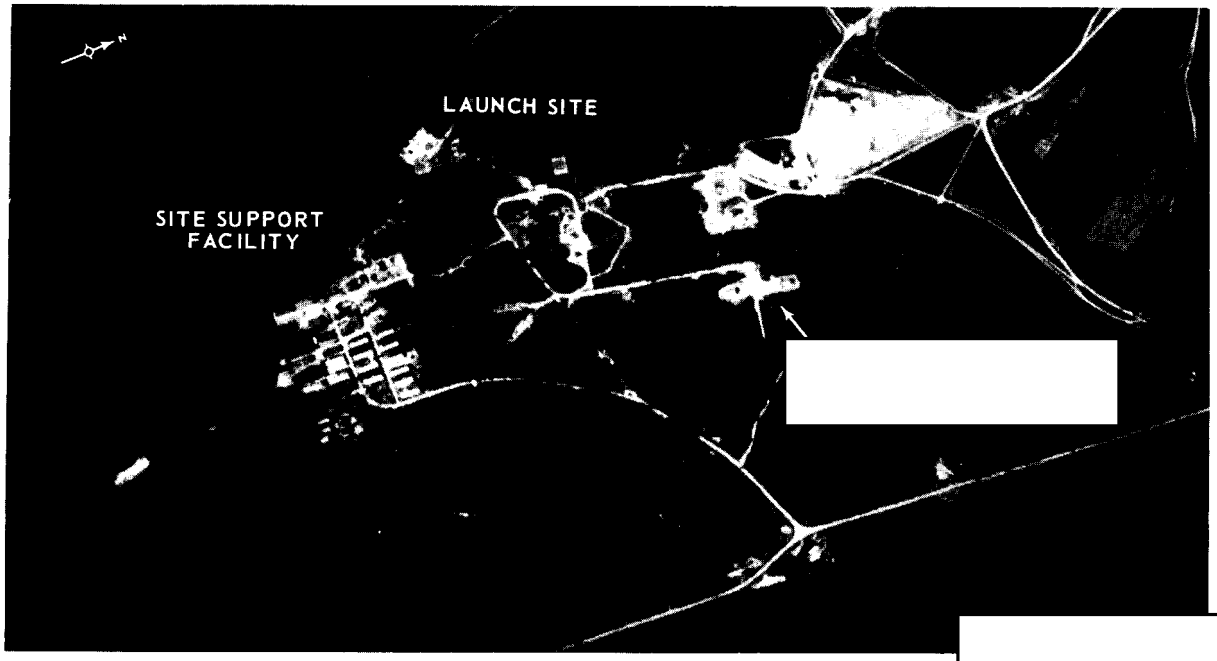


FIGURE 12. LAUNCH SITE E(5), KOZELSK ICBM COMPLEX.

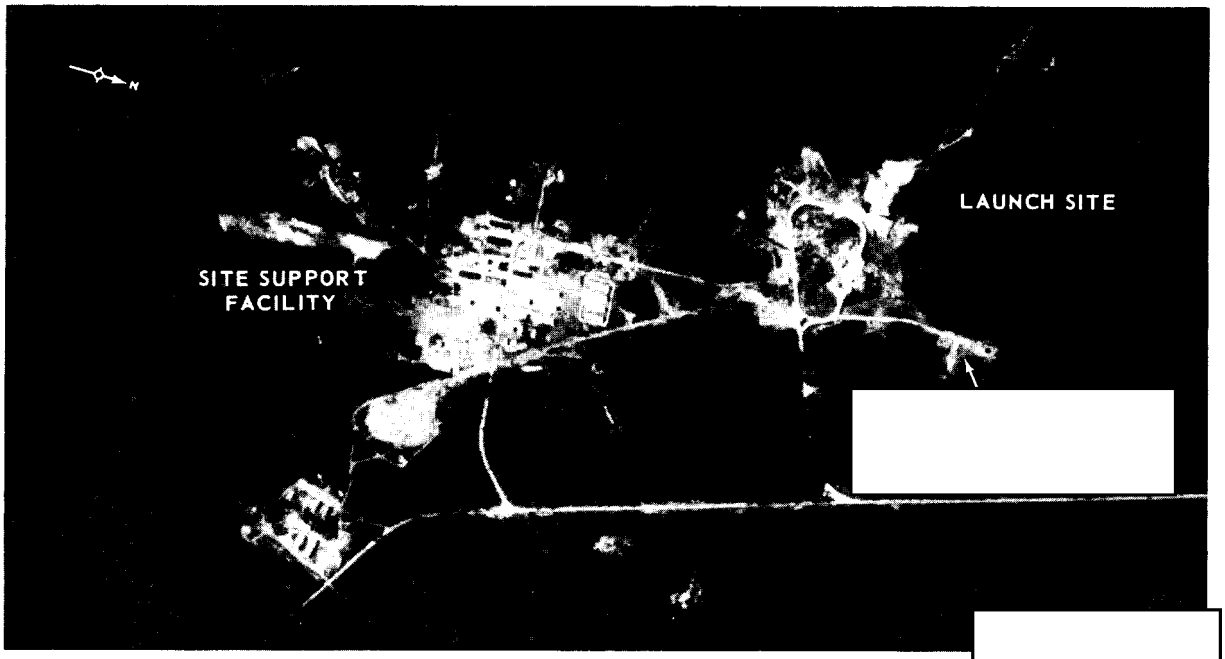


FIGURE 13. LAUNCH SITE F(6), KOZELSK ICBM COMPLEX.

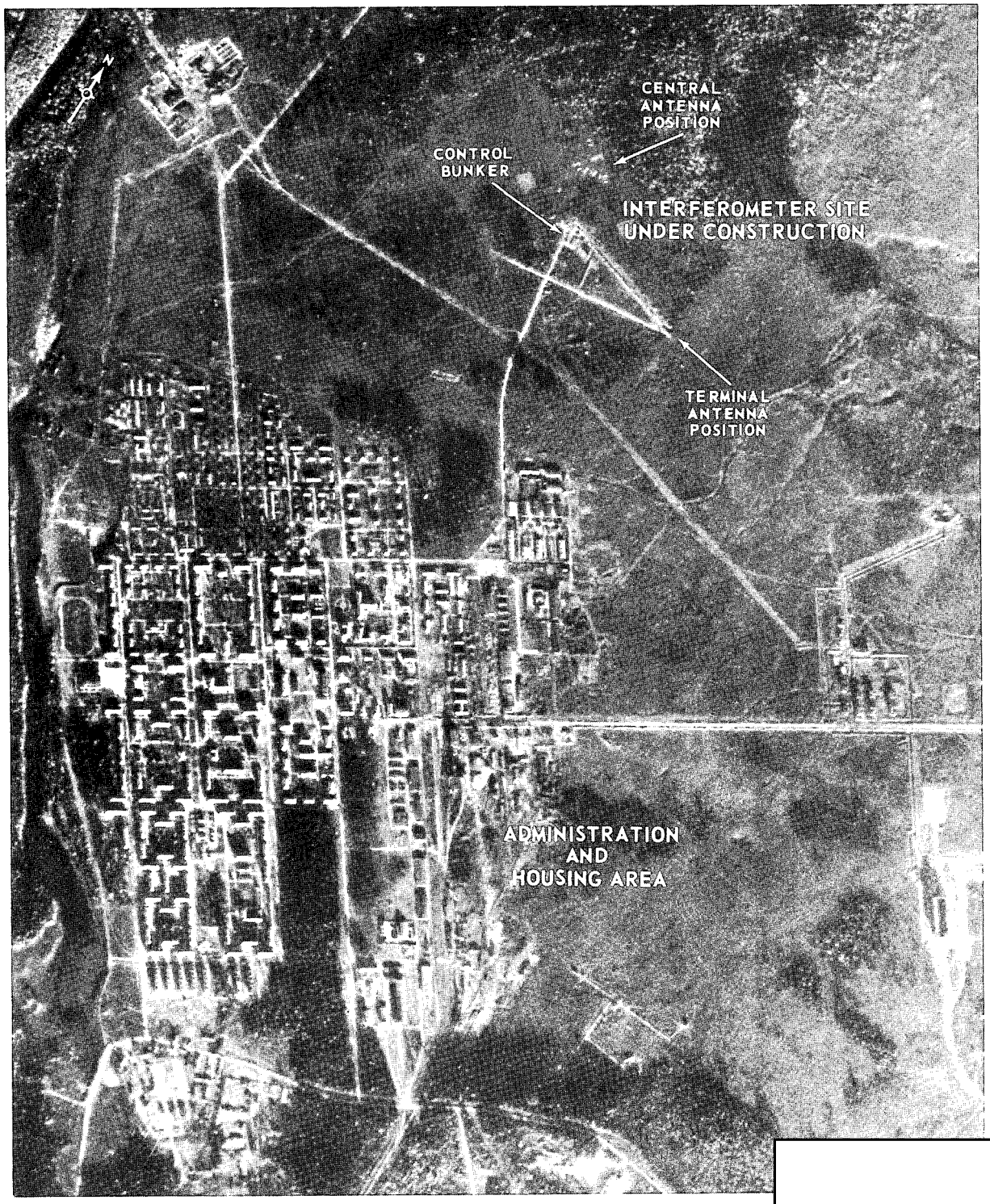
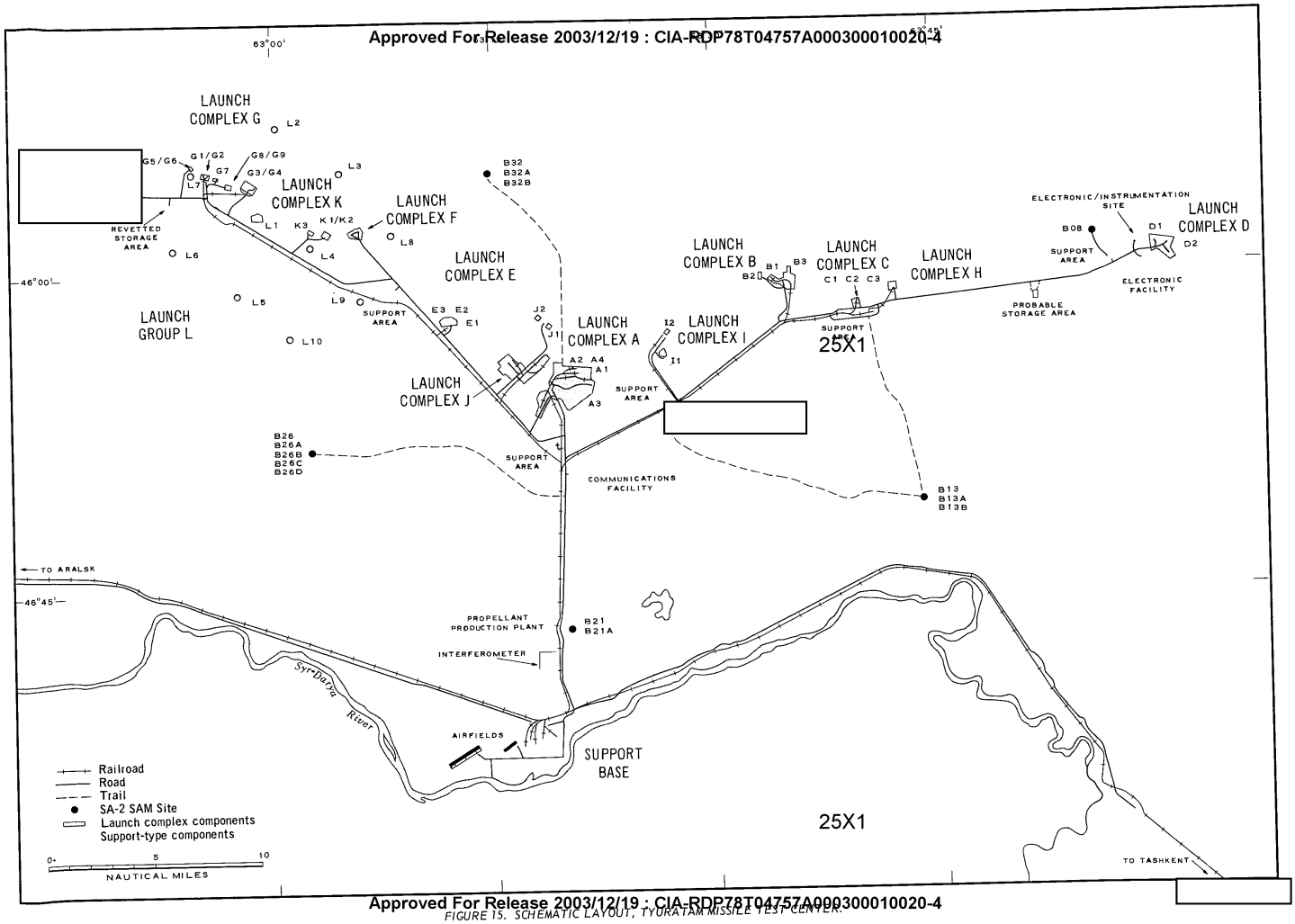


FIGURE 14. NEW INTERFEROMETER SITE, PLESETSK ICBM COMPLEX

25X1



25X1

FIGURE 15. SCHEMATIC LAYOUT, TYURATAM MISSILE TEST CENTER.

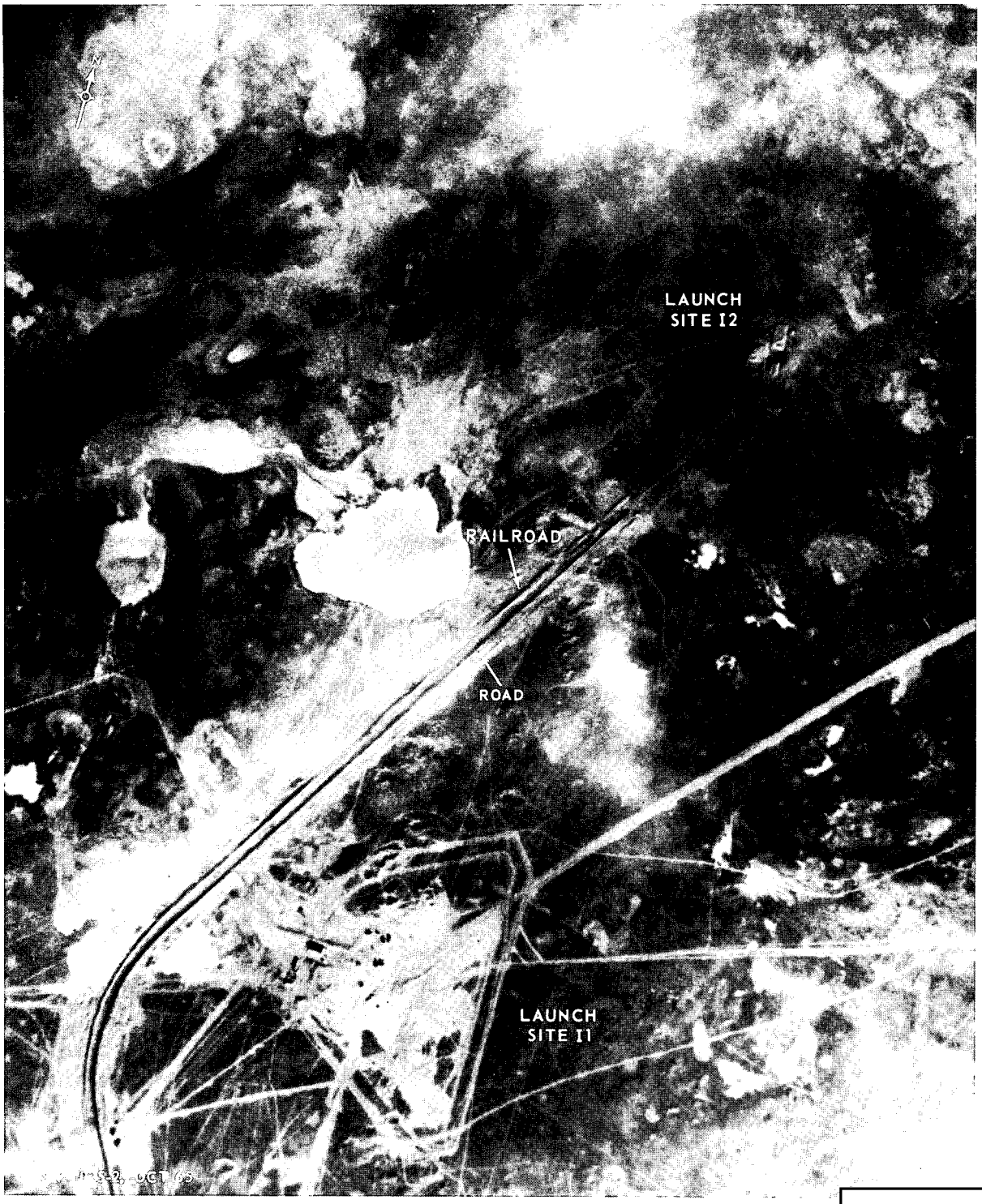


FIGURE 16. LAUNCH SITE I 2, TYURATAM.

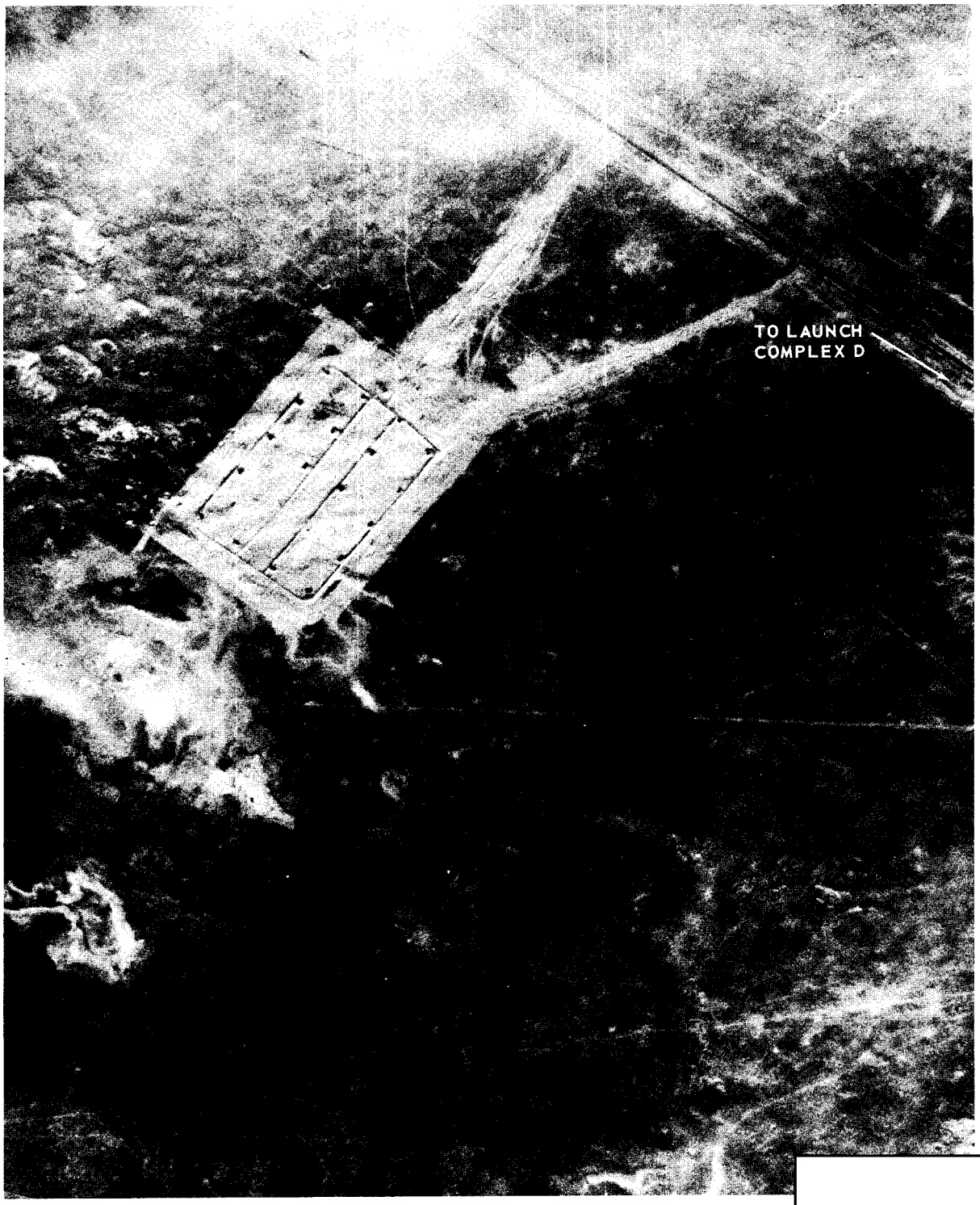
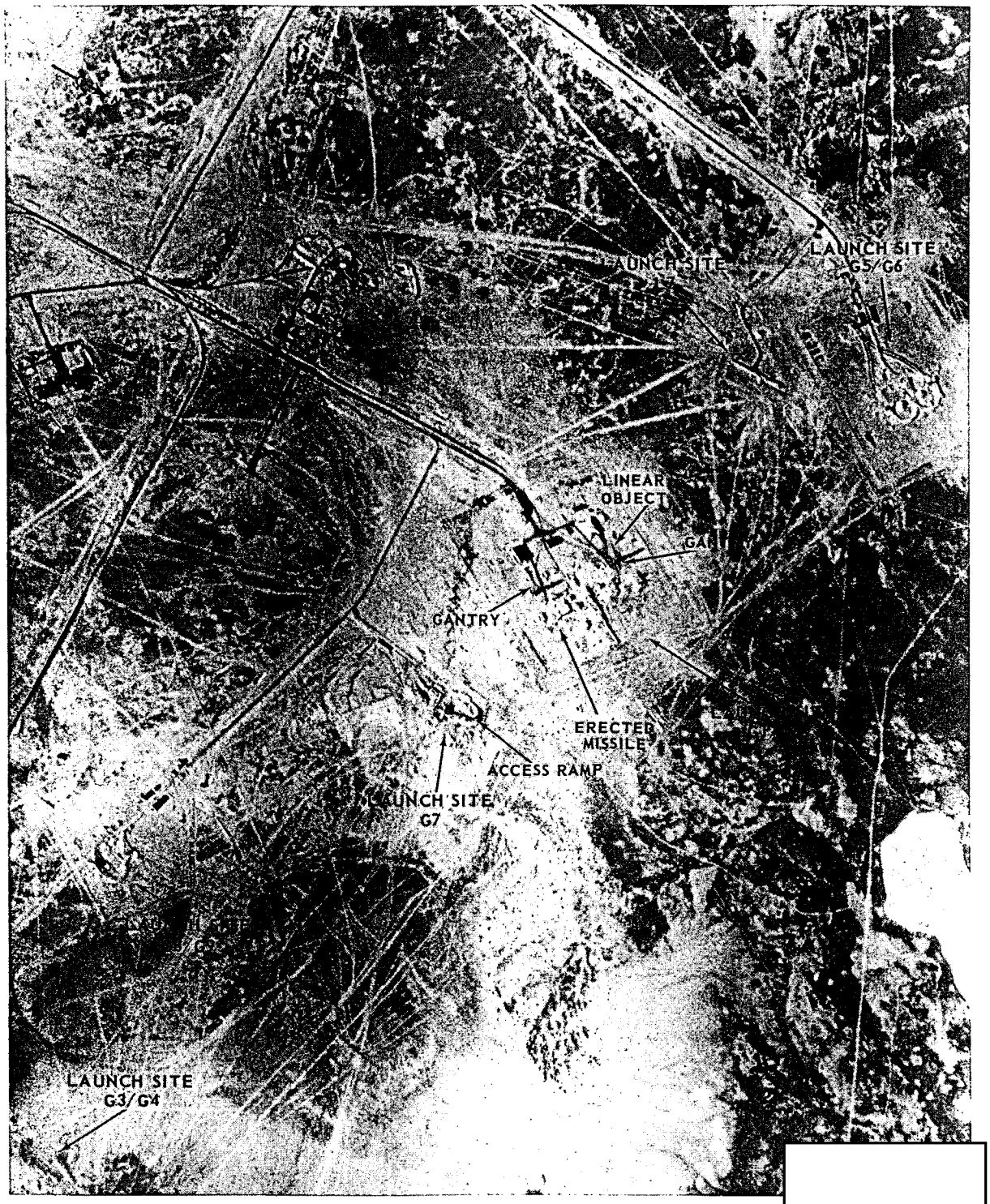


FIGURE 17. CONSTRUCTION ACTIVITY WEST OF LAUNCH COMPLEX D, TYURATAM.

25X1

TOP SECRET

25X1



25X1

FIGURE 18: LAUNCH COMPLEX G, TYURATAM.

25X1

TOP SECRET

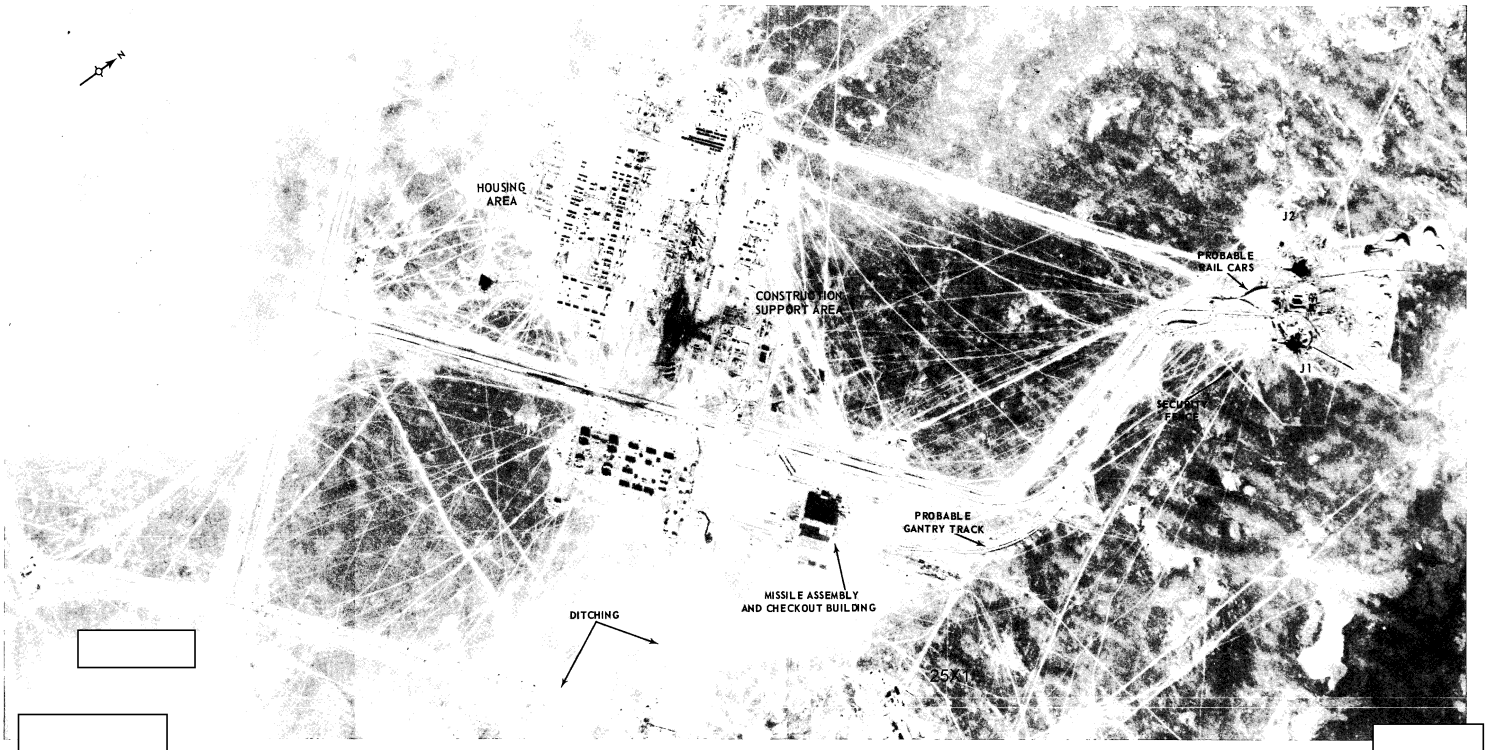


FIGURE 19. LAUNCH COMPLEX J, TYURATAM.

25X1

25X1

25X1

25X1

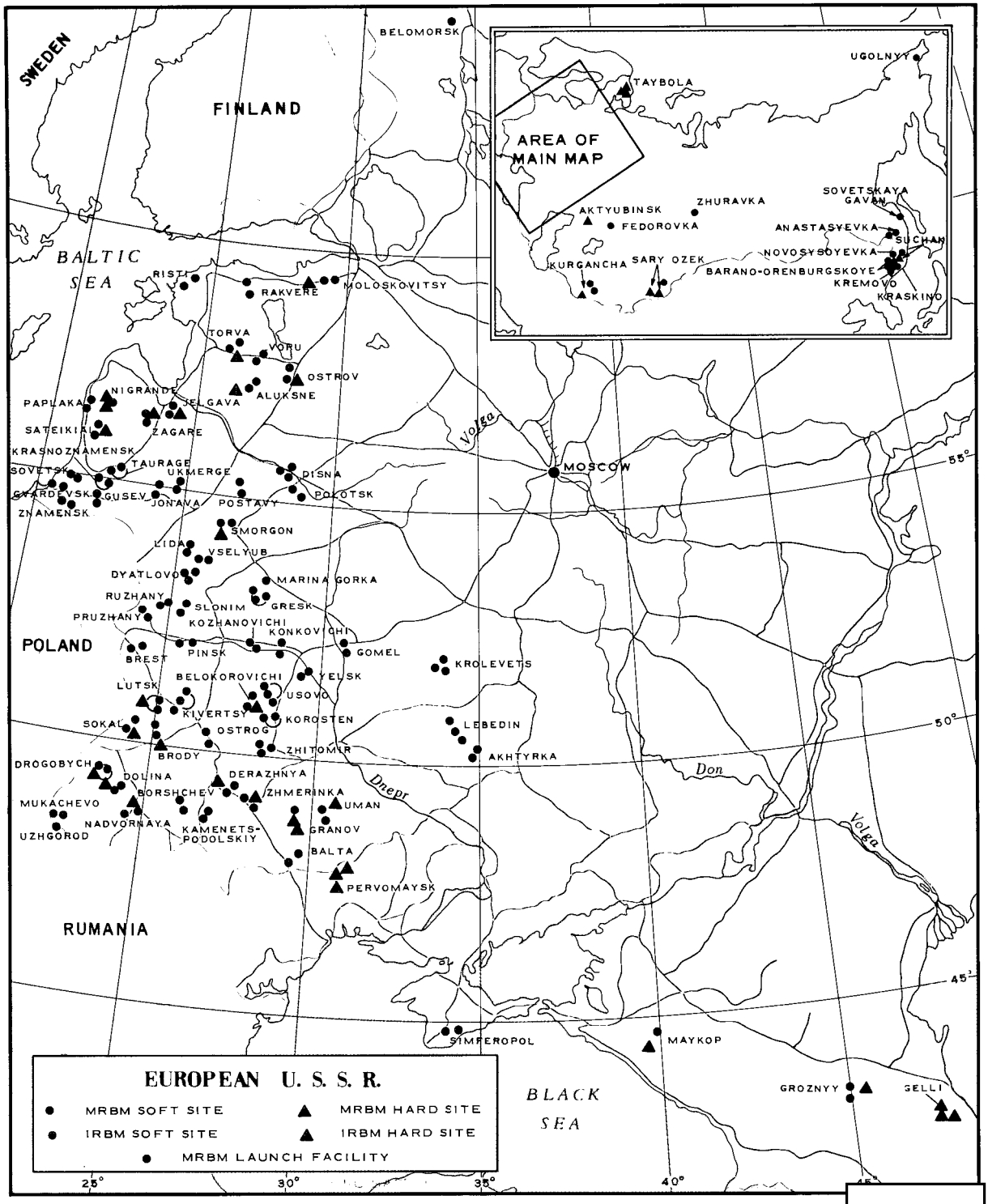


FIGURE 20. DEPLOYMENT OF SOVIET IRBM/MRBM COMPLEXES.

SOVIET IRBM/MRBM DEPLOYMENT

[redacted] photography since our 20th Revision covers 12 of the 14 IRBM, and 66 of the 67 MRBM complexes. With the identification of 8 additional fixed field sites, we now carry a total of 93 sites with 348 launch positions in this category. Changes are reflected in Tables 1, 4, 5, 7, 8, and 9. Information on selected launch sites at the Kapustin Yar Missile Test Center is given in Table 6. The locations of deployed IRBM/MRBM complexes are shown in Figure 20. Typical configurations of the launch sites, and the weapons system associated with each, are depicted in Figure 21.

IRBM DEPLOYMENT

Current Force Level

The IRBM element of the Soviet 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.

Nigrande Complex

[redacted] provided additional details on the site support facility and the [redacted] Skrunda IRBM launch site. [redacted] which was noted in an early stage of construction in [redacted] is still under construction. One large, drive-in earth-mounded building is complete and another is still under construction. A large drive-through earth-mounded building, with a fenced area at one end, is complete. One arch-roofed building is being earth mounded, and an igloo-like bunker, several small buildings, and a small earth-mounded drive-in building were also observed. Adjacent to the site support facility is a vehicle-maintenance and storage section with a large apron and a loop road. The loop road apparently is still being surfaced, and 1 large and 1 small building are adjacent to the apron.

MRBM DEPLOYMENT

Current Force Level

The Soviet MRBM force consists of 156 sites containing 624 launchers, including 84 in a hard configuration. All these launchers are operational.

Fixed Field Sites

Eight additional fixed field sites have been identified on [redacted] photography since our last revision, bringing the number of sites identified to 93 with a total of 348 launch positions. A list of these sites is given in Table 7.

The Gulbene Site (Figure 23) containing 4 launch positions is the second fixed field site to be associated with the Aluksne Complex. It can be negated on [redacted] The Kodyma Site (Figure 24) is the first fixed field site to be associated with the Balta Complex. It contains 4 launch positions, was first observed on [redacted] and can be negated on [redacted] The second field site to be associated with the Marina Gorka Complex has been designated Shotsk 2 (Figure 25). It has 4 launch positions, was first visible on [redacted] and can be negated on [redacted] The Ostrog Site (Figure 26) is the third fixed field site to be associated with the Ostrog Complex. It has 4 launch positions, can be negated on [redacted] and was first observed on [redacted] Three fixed field sites have been identified as associated with the Rakvere Complex, the first time that sites of this type have been noted there. The Tamsalu Site (Figure

25X1

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27) has 4 launch positions, can be negated on [redacted] and was first visible on [redacted] The Kadrina and Tapa sites (Figures 28 and 29) contain 4 and 2 launch positions, respectively. Both these sites can be negated on [redacted] and were first visible on [redacted] The Bolsuny Site (Figure 30) containing 4 launch positions is the second fixed field site to be associated with the Yelsk Complex. It can be negated on [redacted] and was first observed on [redacted]

At the Sofiye Alekseyevskoye Fixed Field Site (Figure 31) associated with the Barano-Orenburgskoye MRBM Complex, [redacted] revealed that 2 of the launch positions appear to have rings in the center of each position; wheel-chock marks were also observed. At the Slavuta Fixed Field Site (Figure 32), associated with the Ostrog MRBM Complex, [redacted] revealed a small unidentified object at 1 of the launch positions and in an associated clearing. Another launch position has a small circular excavation, and short longitudinal ground scars are also apparent. No missiles were identified at the site. Also on [redacted] launch rings and wheel-chocks were visible at 2 of the launch positions at the Gomel 1 Fixed Field Site (Figure 33). A small circular excavation is visible in the center of 1 of the positions, and a small possible structure is present at 2 of the launch positions. The activity reported above was not noted at any of the other fixed field sites covered since our last revision.

Analysis of all fixed field sites is continuing in an attempt to determine their function(s).

Ugolnyy Complex

[redacted] provided excellent coverage of the Ugolnyy MRBM Launch Site (Figure 34). Highlight of this coverage was the observation of 10 probable SCAMP-type vehicles on the site road network. (The SCAMP was discussed briefly in our 20th Revision.) Reanalysis of previous coverage of the Ugolnyy site indicates that at least 6 such vehicles were also present on [redacted] and there is the possibility that they were present as early as [redacted] Similar vehicles have been identified at Launch Site 5C1 at the Kapustin Yar Missile Test Center on [redacted] These vehicles are similar in size and shape to the SCAMP observed in the [redacted] Moscow parade which Marshal Krylov, Commander-in-Chief, Soviet Strategic Rocket Forces, claims is capable of intermediate ranges.

There has been no identified flight test program that can be associated with the solid-propellant SCAMP vehicle. We have had repeated coverage of most MRBM sites, and Ugolnyy is the only deployed operational site where vehicles of this type have been observed to date. In addition, it should be noted that SS-4 erectors and ground support equipment are still in place at the Ugolnyy site.

In summary, although photographic evidence and interpretation indicate that these vehicles may be the SCAMP, a conclusive evaluation is not possible at this time for the following reasons:

1. The lack of any identified R&D test program which can be related to the SCAMP, despite the appearance of this system at a deployed site for possibly 18 months

2. The apparent retention of the SS-4 system at the Ugolnyy MRBM Site

3. The selection of a remote site for the

early and, to date, the only apparent deployment of this system

4. The limited number of strategic targets within MRBM range, and the fact that they are apparently covered by existing SS-4 missiles

5. The remoteness of the Ugolnyy site and the fact that it must be fairly self-sufficient would indicate the need for unique ground support equipment which might not necessarily be required at other MRBM sites.

This subject is still under study, and we will report in future revisions any new developments or conclusions derived from information acquired subsequent to this report.

MISSILE-ASSOCIATED INSTALLATIONS

X1 [redacted] in
X1 [redacted] provided excellent coverage of 3 of the 8 Regional Military Storage Installations identified in the Soviet Union; Tambov at 52-27N 41-27E, Berdichev at 49-57N 28-17E, and Novaya Mezinovka at 53-31N 26-55E (Figures 35, 36, 37). Of the 8 installations identified, all but 1 have associated [redacted]
X1
X1 [redacted]

Coverage of the Berdichev and Tambov
X1 installations on [redacted] revealed the presence of significant numbers of strategic missile ground support equipment
X1 dispersed throughout the storage area. [redacted]
X1 [redacted] indicated that the same situation existed at the Novaya Mezinovka installation. The missile support equipment identified included SS-4 and SS-5 transporters, erectors, fuel trailers, oxidizer trailers, probable nosecone vans, prime movers, and cherry-pickers present in significant numbers.

Each installation is divided into a large military storage area and a support area. The storage areas are characterized by a large group of storage buildings, with an average of 28 buildings per installation. These buildings vary in size from installation to installation, ranging from 135 by 45 to 260 by 65 feet.

It is interesting to note that 2 of the 3 Regional Military Storage Installations (Berdichev and Novaya Mezinovka) covered by these missions are centrally located in the IRBM/MRBM deployment area in the western USSR.

The Regional Military Storage Installations are currently the subject of continuing study and analysis. [redacted] photography of those installations not covered to date is required to determine if they also contain a similar amount of strategic-missile-related equipment. We will report the results of our analysis and evaluations of new data in subsequent revisions.

KAPUSTIN YAR MISSILE TEST CENTER

Test Range Facilities

[redacted] 25X
[redacted] provided good quality coverage 25X
of the Kapustin Yar Missile Test Center (Figure 38). A brief description of the activity at each of these facilities is given in the following paragraphs.

An exercise is underway at Launch Site 1A2. Three small vehicles are on the pad and 8 vehicles are immediately north of the pad. In addition, vehicles are located north of the drive-in revetments.

An SS-4 exercise is underway at Launch Site 2C2 (Figure 39). A transporter, an erector, 2 oxidizer transporters, a fuel transporter, and 16 additional support vehicles were observed. The open ditch observed on [redacted] 25X
[redacted] has been backfilled and 1 25X
new building has been completed in the support area. A probable missile-service tower, an unidentified structure, and unidentified equipment are at Launch Site 2C1.

At Launch Site 4C1 (Figure 40) the rail extends to the left rear silo which is open. A

slender tower adjacent to the east side of this silo casts a shadow 115 to 120 feet in length. The northwest silo is open, the first time this has been noted. The 70-foot-high (approximate) structure over the northeast silo has been removed and displaced to the north. At Launch Site 4C2 (Figure 41) the silos are all closed. One empty SS-5 transporter, 2 possible transporters, and 8 vehicles or pieces of equipment are within the site. A possible SS-5 missile on a transporter, 1 suspect erector, and 1 unidentified vehicle are on the road leading from the site.

At Launch Area 5C an SS-5 missile on a transporter and an erector are on the north pad at Launch Site 5C1 (Figure 42). Two SS-5 fuel transporters and 4 unidentified vehicles are parked on the apron at the front of the site road pattern. A possible SCAMP vehicle is on an apron within the site. A newly identified rectangular step-roofed building is located between Launch Sites 5C1 and 5C2, but within the 5C1 security fence. A circular excavation and a vehicle are adjacent to this building. Unidentified construction activity is still underway on the southern pad at Launch Site 5C1. Launch Site 5C2 remains abandoned.

Test Range SSM Activity

During the period [redacted] a total of 6 MRBMs and 1 IRBM was launched from Kapustin Yar. SS-4s were launched on [redacted] The IRBM was launched on [redacted] In addition there were 3 MRBM firings from the Sovetskaya Gavan launch facility to Kamchatka.

25X1

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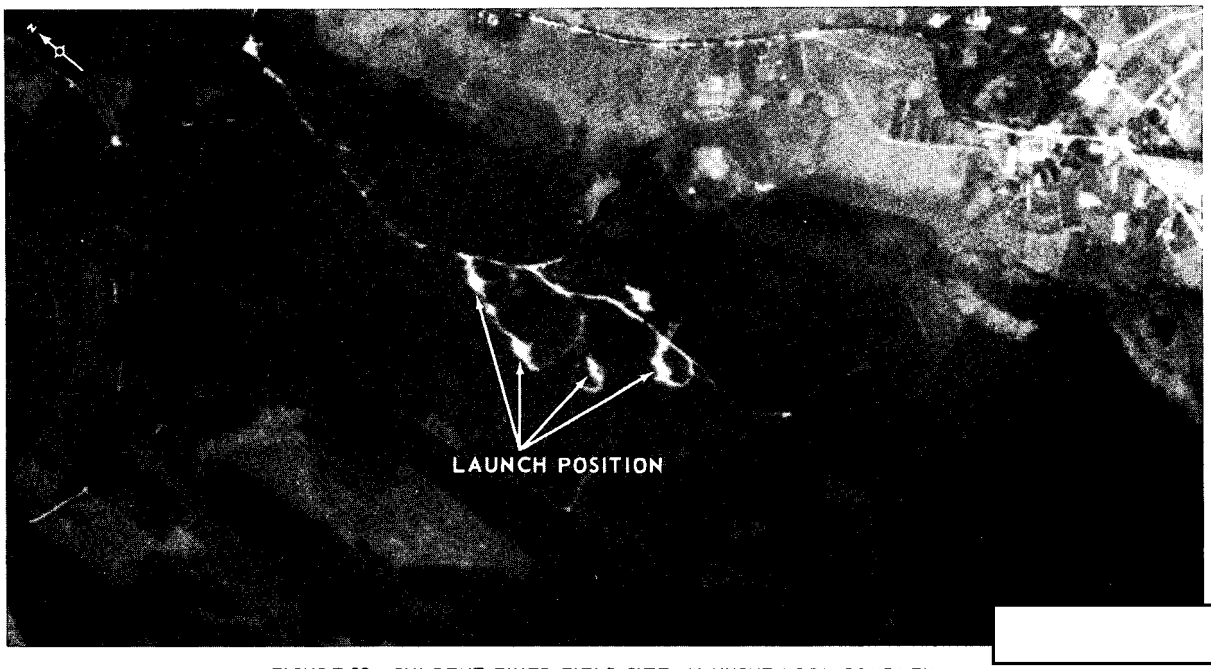


FIGURE 23. GULBENE FIXED FIELD SITE, ALUKSNE MRBM COMPLEX.

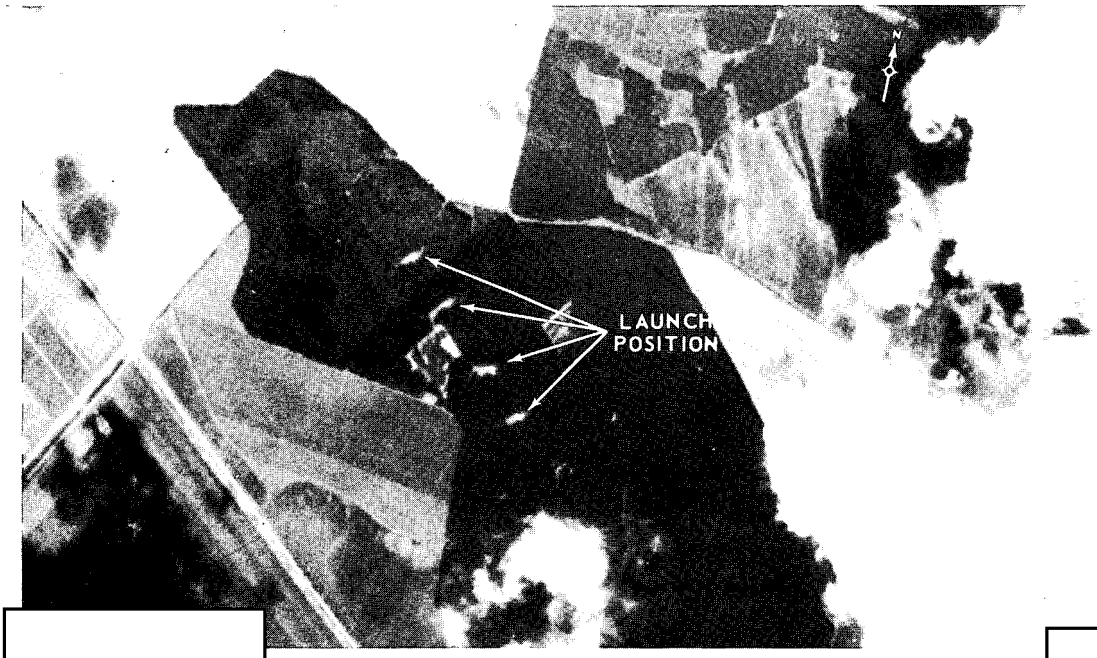


FIGURE 24. KODYMA FIXED FIELD SITE, BALTA MRBM COMPLEX.

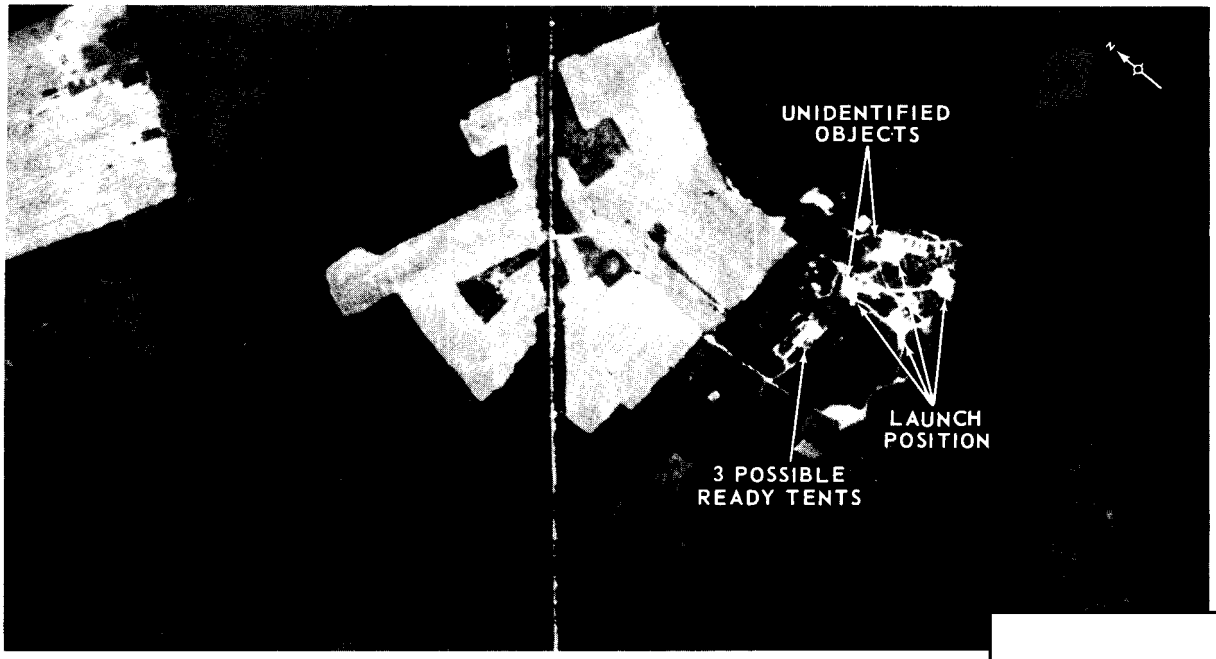


FIGURE 25. SHOTSK 2 FIXED FIELD SITE, MARINA GORKA MRBM COMPLEX.

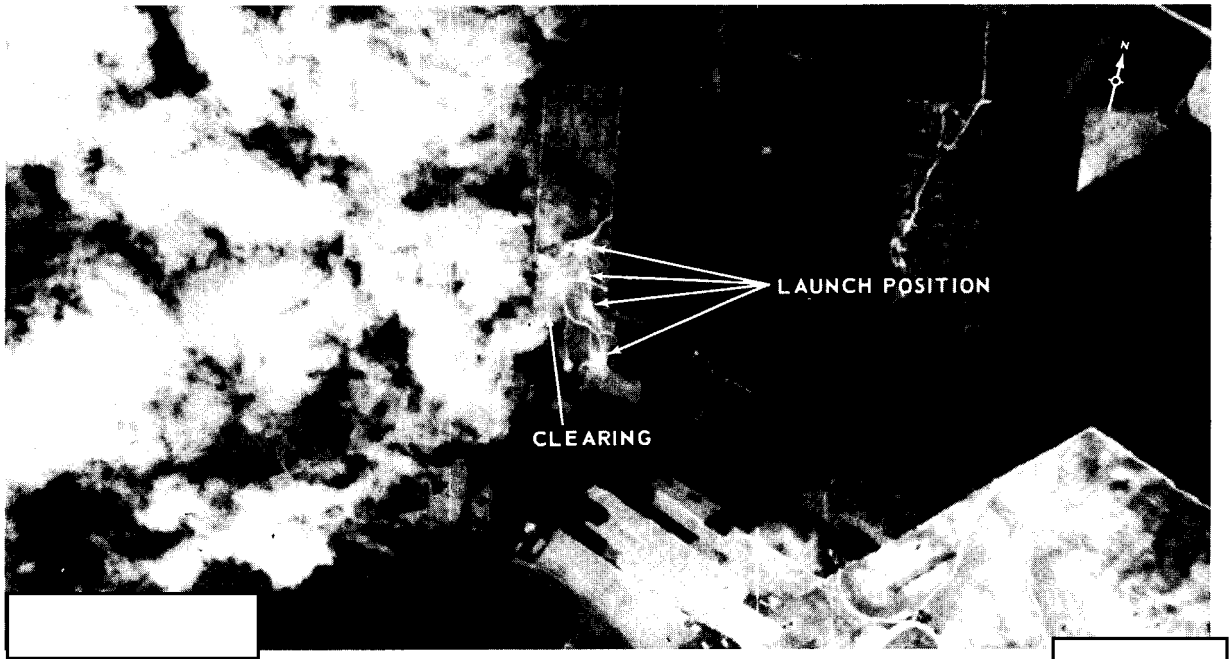


FIGURE 26. OSTROG FIXED FIELD SITE, OSTROG MRBM COMPLEX.

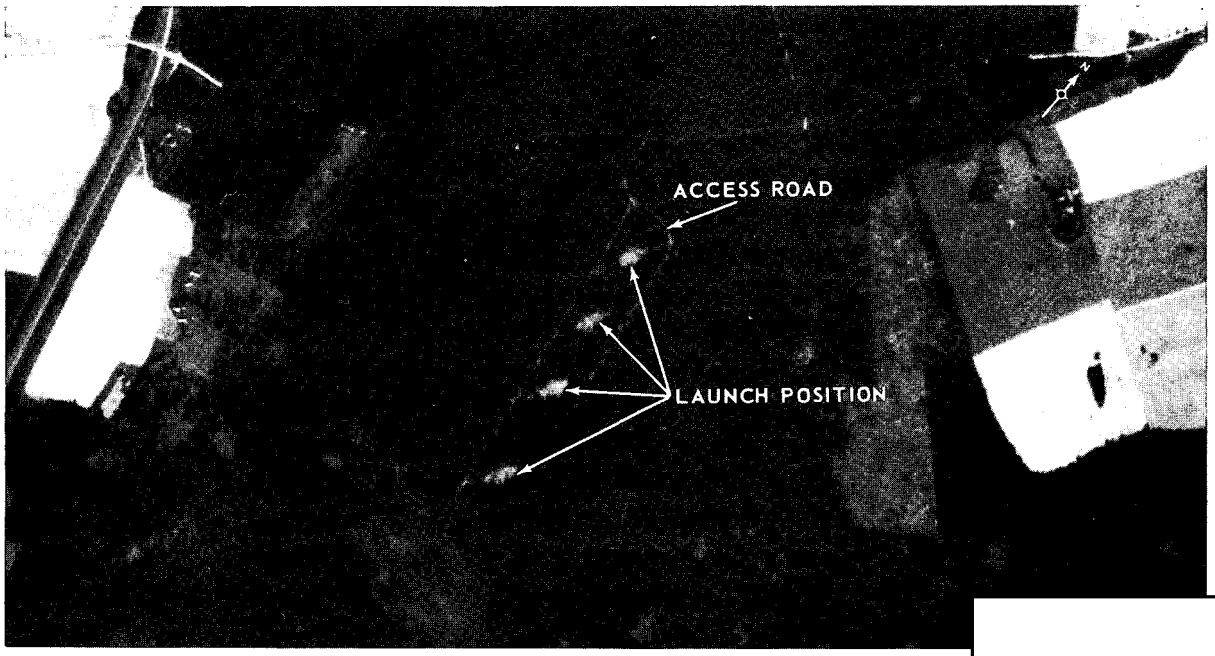


FIGURE 27. TAMSALU FIXED FIELD SITE, RAKVERE MRBM COMPLEX.

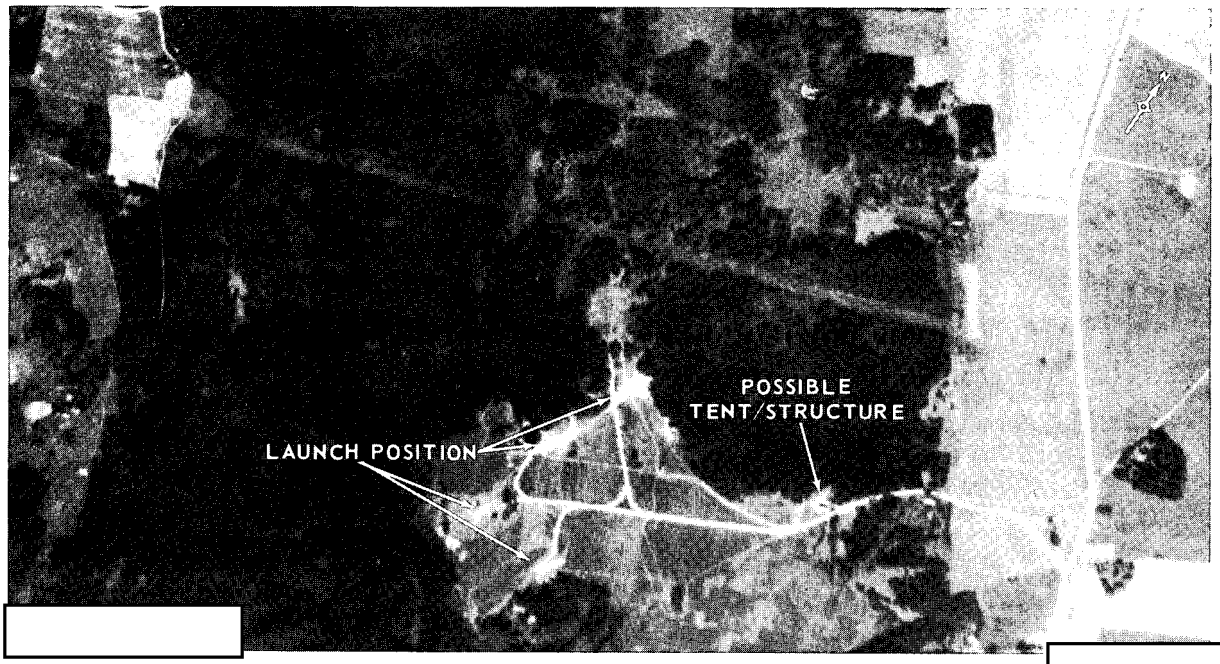


FIGURE 28. KADRINA FIXED FIELD SITE, RAKVERE MRBM COMPLEX.

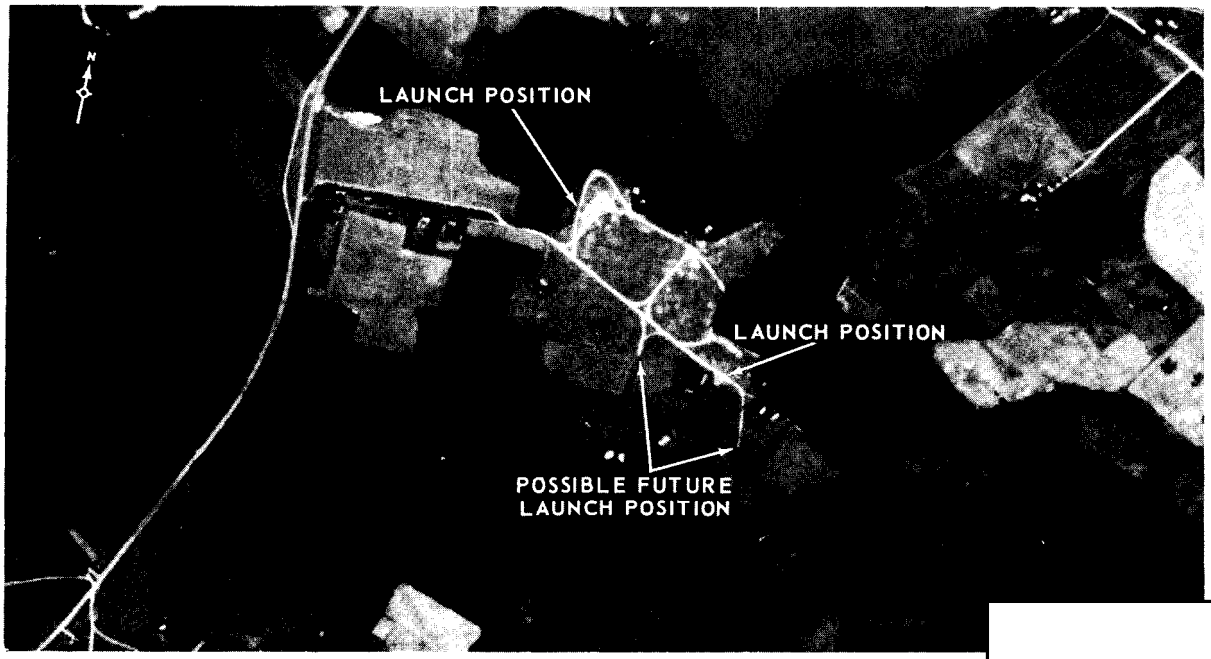


FIGURE 29. TAPA FIXED FIELD SITE, RAKVERE MRBM COMPLEX.

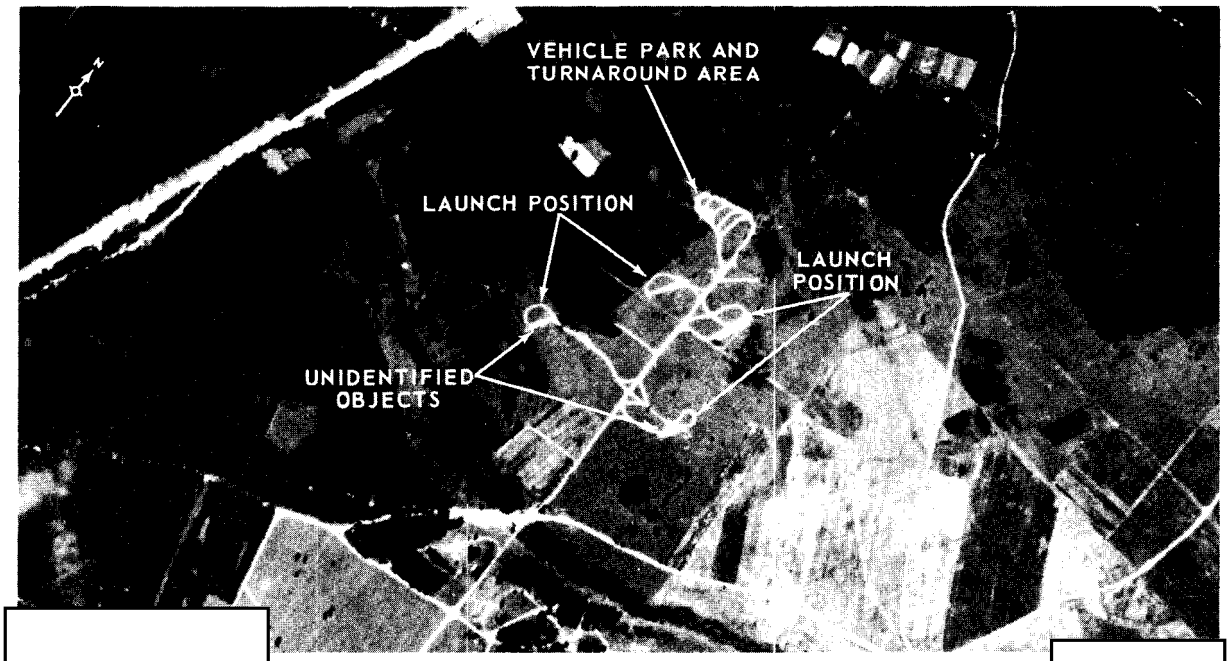


FIGURE 30. BOLSUNY FIXED FIELD SITE, YELSK MRBM COMPLEX.

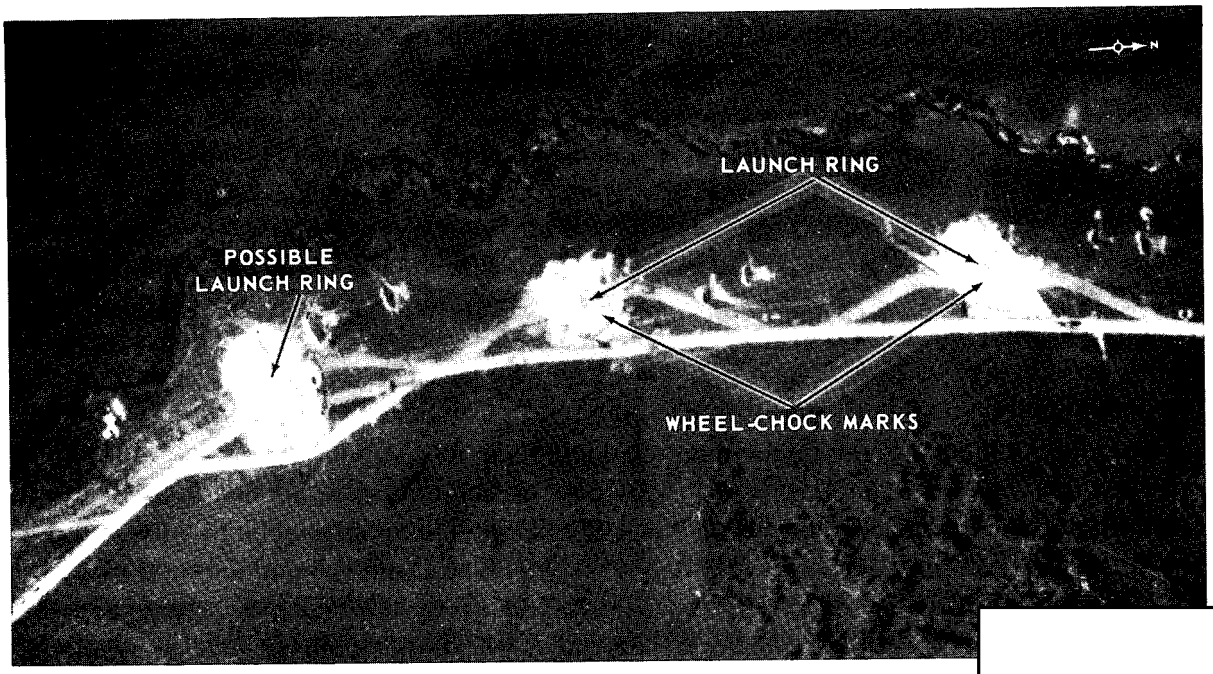


FIGURE 31. SOFIYE ALEKSEYEVSKOYE FIXED FIELD SITE, BARANO-ORENBURGSKOYE MRBM COMPLEX.

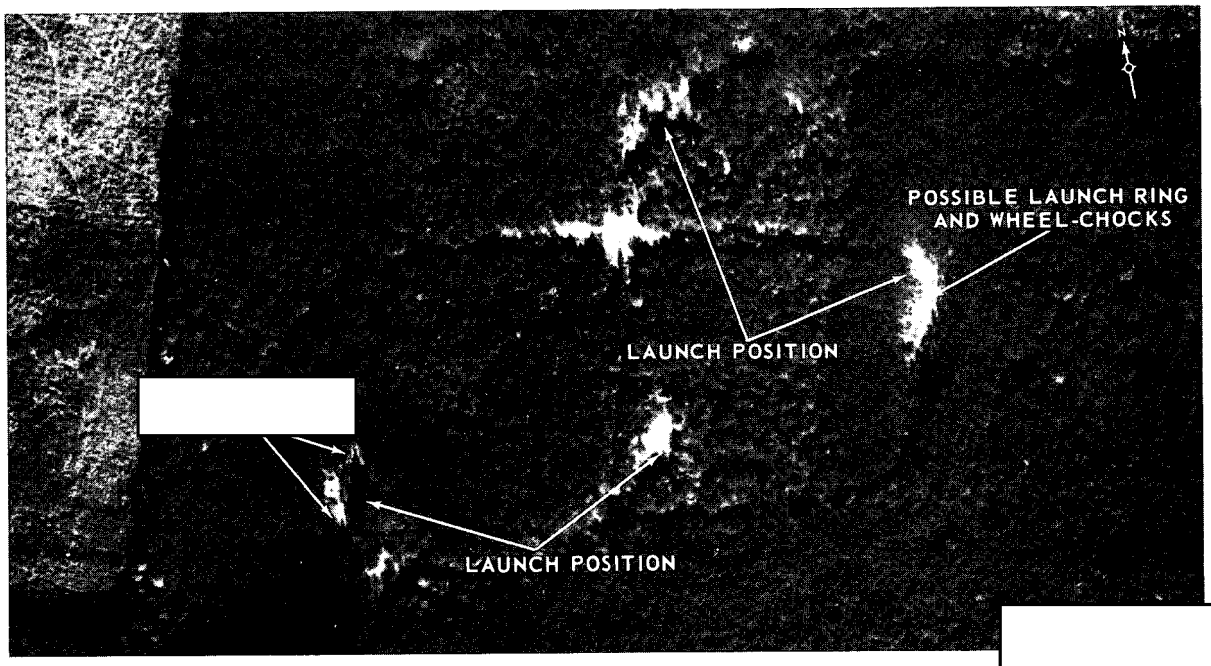


FIGURE 32. SLAVUTA FIXED FIELD SITE, OSTROG MRBM COMPLEX.

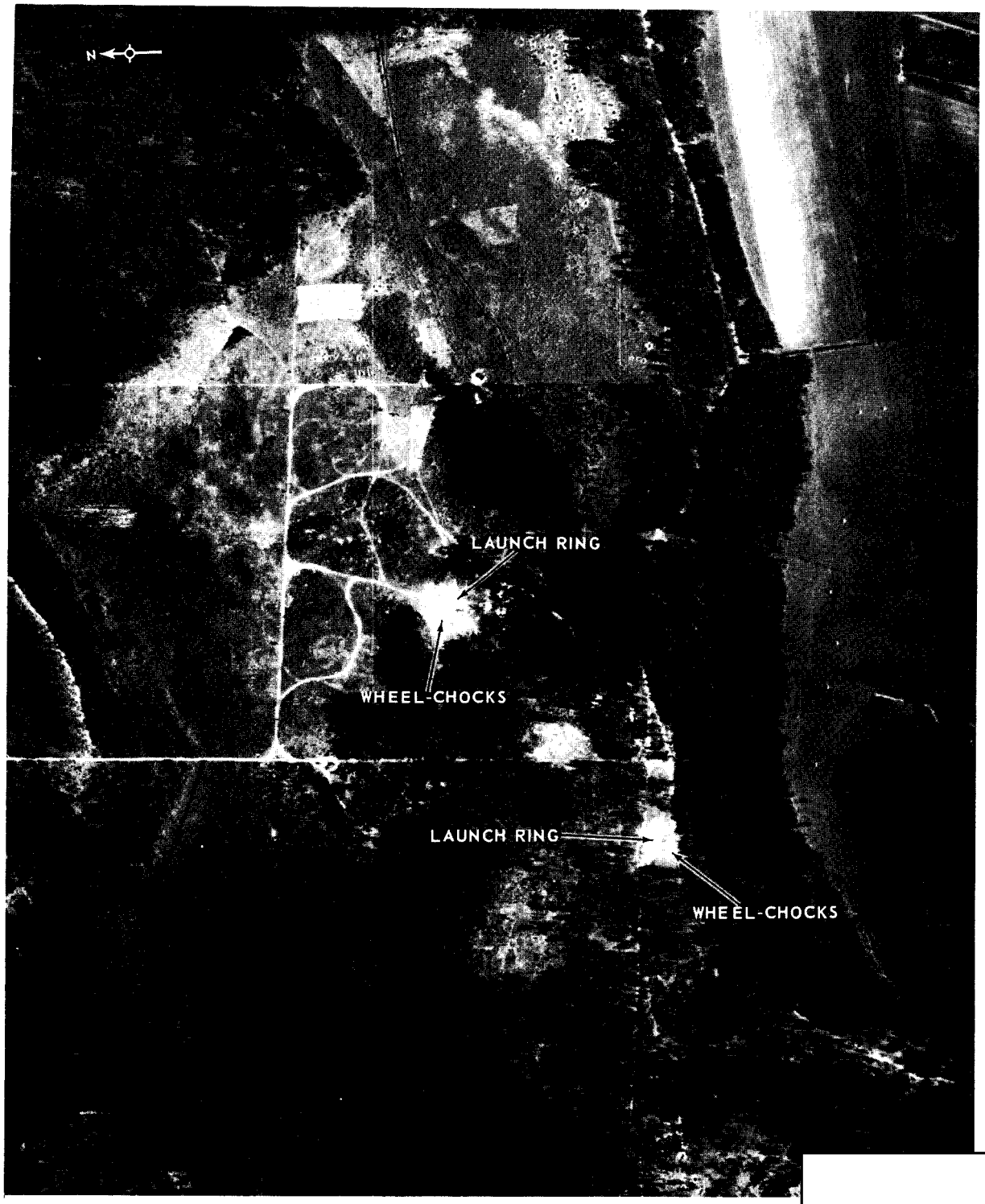


FIGURE 33. GOMEL 1 FIXED FIELD SITE, GOMEL MRBM COMPLEX.

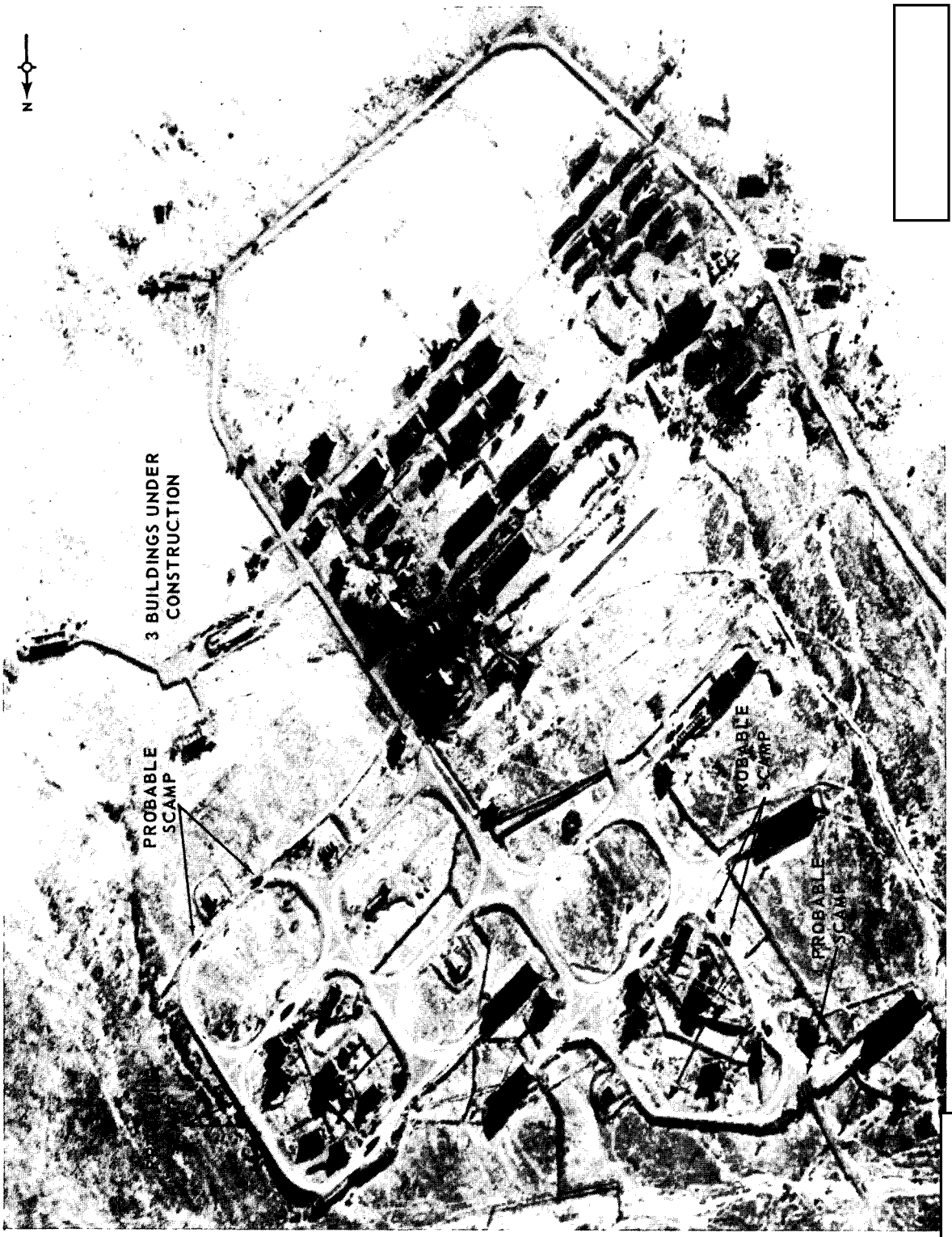


FIGURE 34. UGOLNYY MRBM LAUNCH SITE.

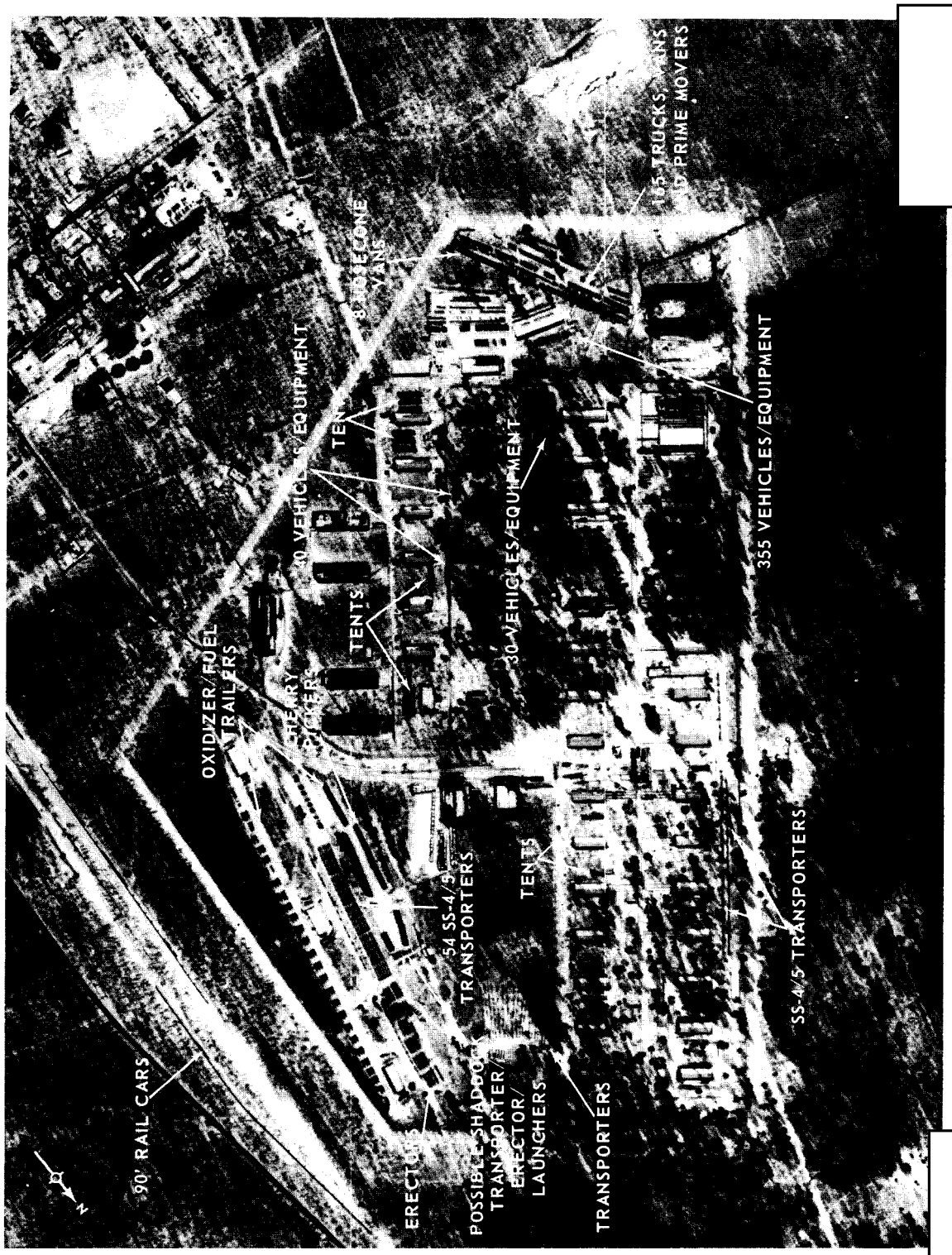


FIGURE 35. TAMBOV REGIONAL MILITARY STORAGE INSTALLATION.

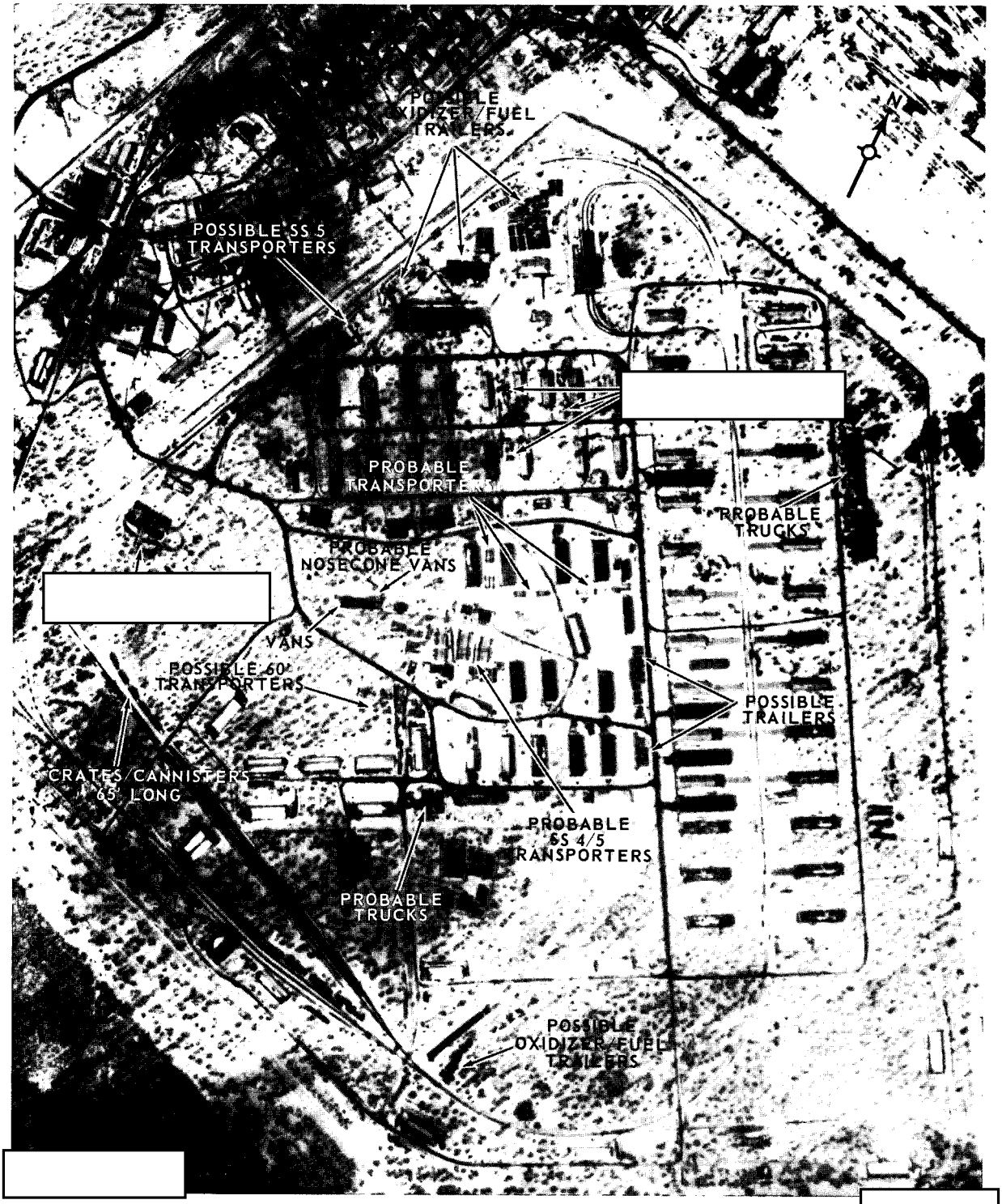


FIGURE 36. BERDICHEV REGIONAL MILITARY STORAGE INSTALLATION.

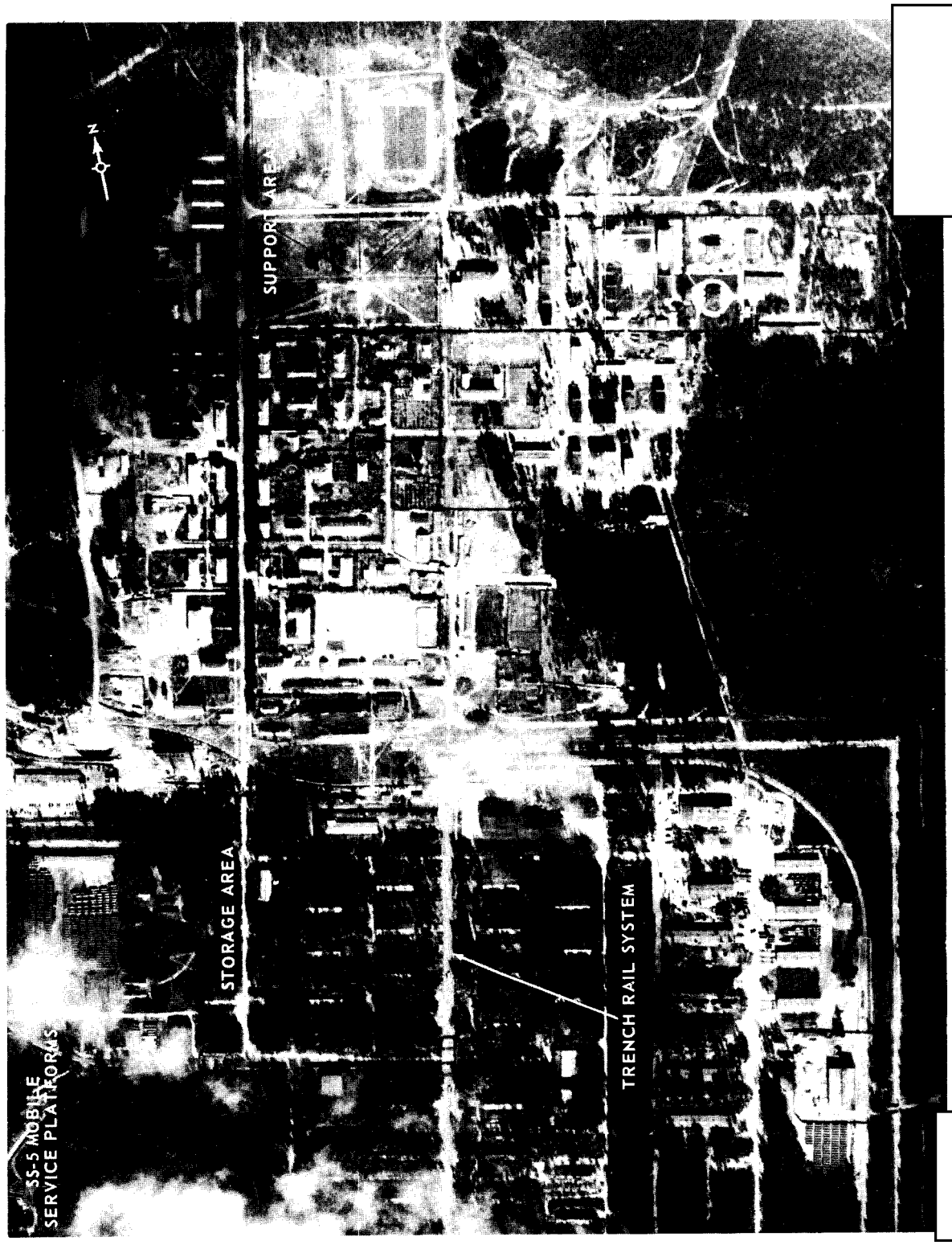


FIGURE 37. NOVAYA MEZINOVKA REGIONAL MILITARY STORAGE INSTALLATION.

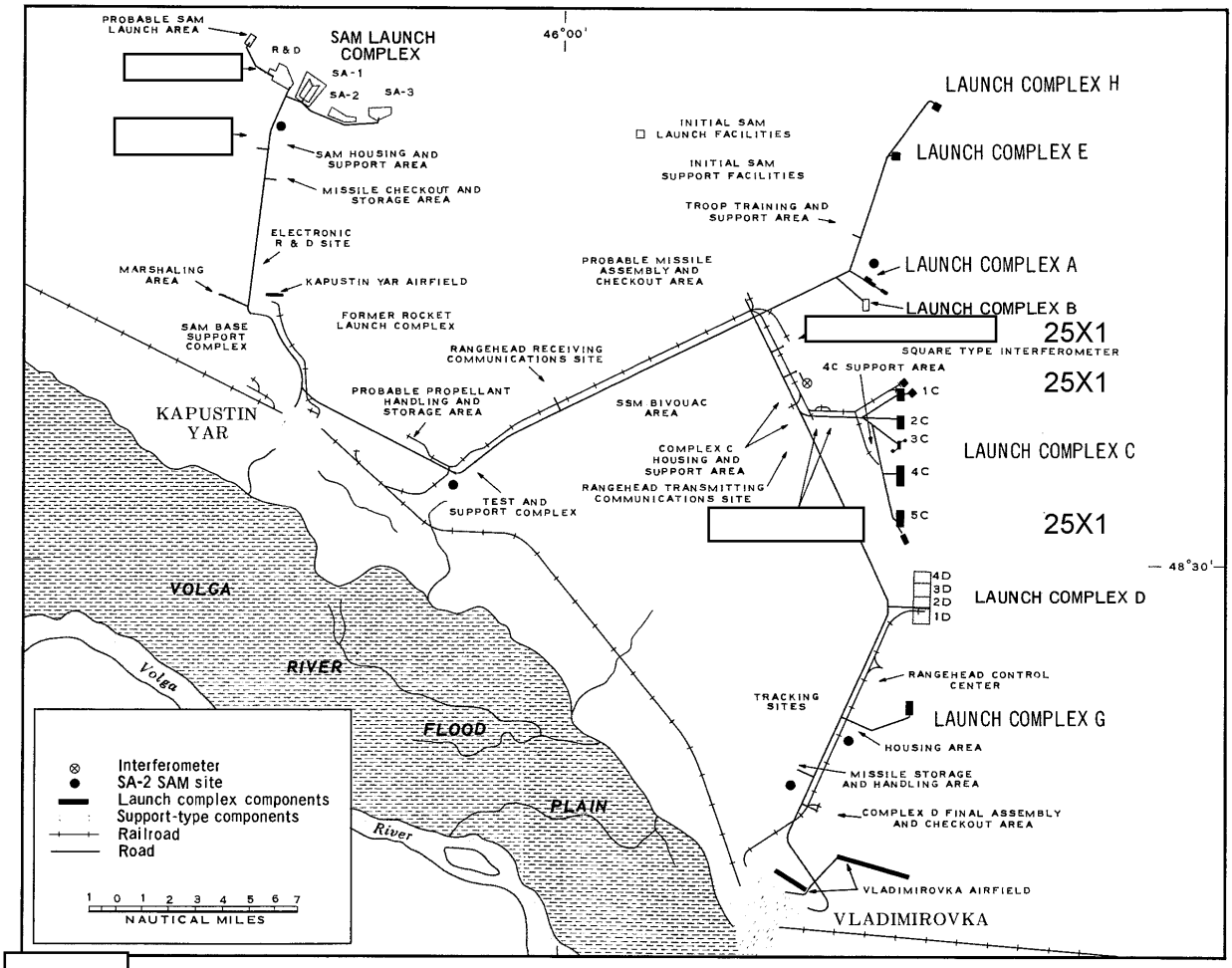


FIGURE 38. SCHEMATIC LAYOUT, KAPUSTIN YAR MISSILE TEST CENTER.

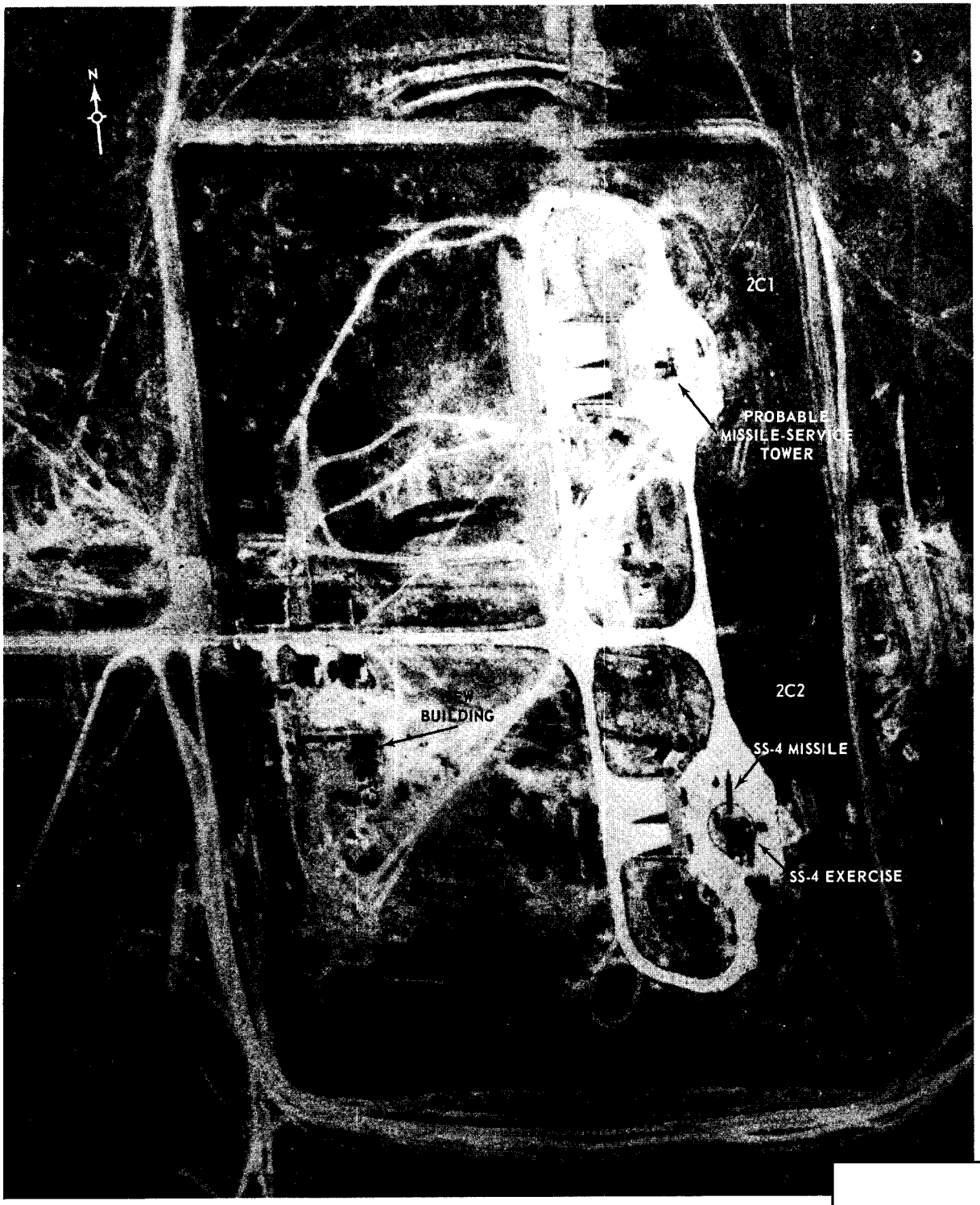
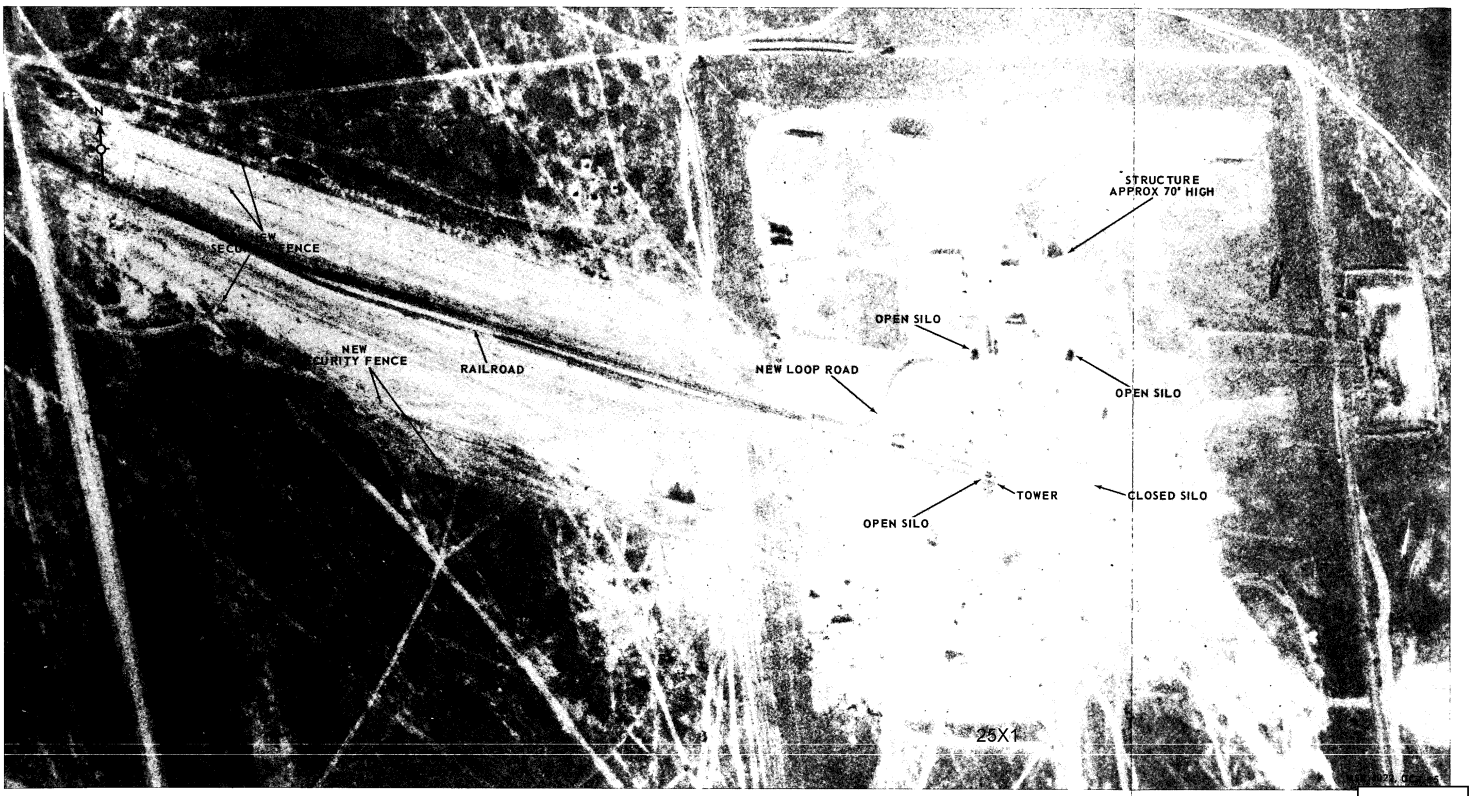


FIGURE 39. LAUNCH SITE 2C2, KAPUSTIN YAR.



25X1

FIGURE 40. LAUNCH SITE 4C1, KAPUSTIN YAR.

25X1

25X1

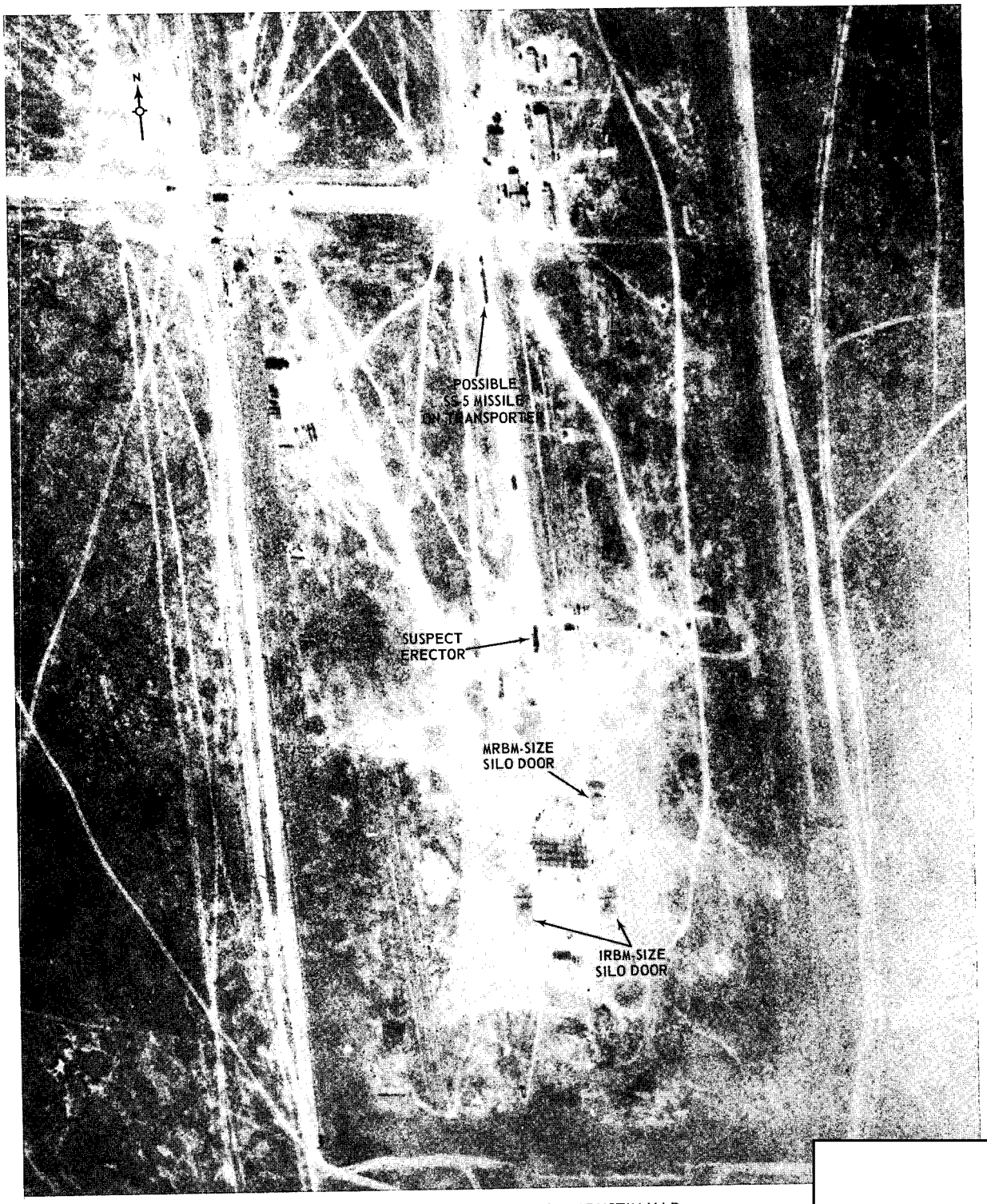


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FIGURE 41. LAUNCH SITE 4C2, KAPUSTIN YAR.

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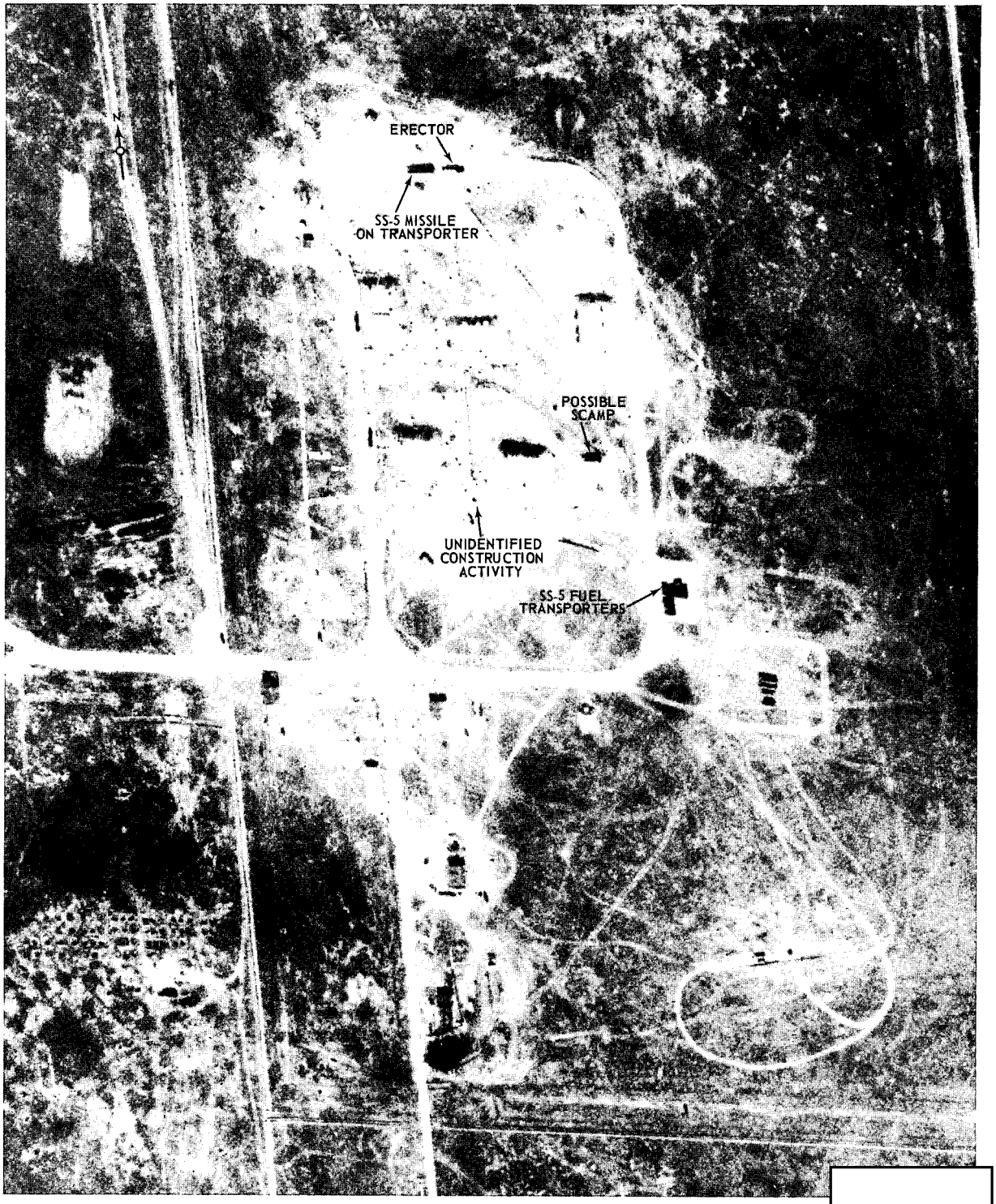

FIGURE 42. LAUNCH SITE 5C1, KAPUSTIN YAR.

TABLE 1. SUMMARY OF ESTIMATED STATUS OF IDENTIFIED ICBM, IRBM, AND MRBM LAUNCHERS AT DEPLOYED COMPLEXES, [redacted]

Type	Sites	Launchers	Operational	U/C
ICBM				
IA	3	4	4	0
IB	2	4	0	4
IIA	5	10	10	0
IIB	29	58	58	0
IIC	7	14	14	0
IID	30	60	60	0
IIIA	23	69	69	0
IIIB	3	9	9	0
IIIC**	72	72	0	72
IIID***	109	109	0	109
TOTALS	283	409	224	185

Type	Sites	Launchers	Operational	U/C
IRBM				
III	15	58	58	0
IV	17	51	51	0
TOTALS	32	109	109	0
MRBM				
I	84	336	336	0
II	51	204	204	0
IV	21	84	84	0
TOTALS	156	624	624	0
GRAND TOTALS	188	733	733	0

*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.

**Figures do not include 4 sites carried in the possible category.

***Figures do not include 14 sites carried in the possible category.

25X1

25X1

TOP SECRET

25X1

TOP SECRET

25X1

25X1

25X1

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	Date	Msn	Const**	1st	2nd	3rd	4th	
ALEYSK																			
Site A(1)		52-27N 82-35E	IIIC		1									Mid		66			U/C
Site B(2)		52-29N 82-40E	IIIC		1									Late		66			U/C
Site C(3)		52-33N 82-42E	IIIC		1									Mid		66			U/C
Site D(4)		52-32N 82-34E	IIIC		1									Mid			66		U/C
Site E(5)		52-35N 82-30E	IIIC		1									Mid		66			U/C
Site F(6)		52-36N 82-36E	IIIC		1									Late		66			U/C
Site G(7)		52-23N 82-46E	IIIC		1									UNDET			67		U/C
Site H(8)		52-17N 82-49E	IIIC		1									UNDET	67				U/C
Site I (9)		52-15N 82-39E	IIIC		1									UNDET			67		U/C
Site J (10)		52-10N 82-36E	IIIC		1									UNDET			67		U/C
Site K (11) Probable		52-12N 82-44E	IIIC		1									UNDET			67		U/C
DOMBAROVSKIY																			
Site A(4)		51-11N 59-37E	IIIC		1									Mid	66				U/C
Site B(3)		51-06N 59-38E	IIIC		1									Mid		66			U/C
Site C(2)		51-01N 59-41E	IIIC		1									Mid		66			U/C
Site D(1)		50-58N 59-32E	IIIC		1									Mid		66			U/C
Site E(6)		51-04N 59-28E	IIIC		1									Mid			66		U/C
Site F(7)		51-09N 59-31E	IIIC		1									Early	67				U/C
Site G(11)		51-12N 59-51E	IIIC		1									Early		67			U/C
Site H(10) Probable		51-09N 59-44E	IIIC		1									Early		67			U/C
Site I(8) Probable		51-02N 59-57E	IIIC		1									Early		67			U/C
Site J(9) Probable		51-06N 59-50E	IIIC		1									Early		67			U/C
Site K(12) Possible		51-10N 59-58E	IIIC											Early					U/C
DROVYANAYA																			
Site A(1)		51-25N 113-00E	IIB	2										Complete	63				Operational
Site B(2)		51-25N 113-04E	IIIA		3									Complete	64				Operational
Site C(4)		51-28N 113-04E	IID	2										Complete				63	Operational
Site D(3)		51-20N 113-01E	IID	2										Complete	64				Operational
Site E(5)		51-23N 112-50E	IIIA		3									Complete				64	Operational
Site F(6)		51-20N 112-55E	IIIA		3									Complete				64	Operational
Group G (7-18)		51-31N 113-04E	IIID		10									Late	66				U/C
Group H(16-26)		51-23N 112-57E	IIID		10									Mid	66				U/C
GLADKAYA																			
Site A(3)		56-20N 92-18E	IID	2										Complete				63	Operational
Site B(2)		56-25N 92-27E	IID	2										Complete	64				Operational
Site D(5)		56-20N 92-13E	IIIA		3									Complete				64	Operational
Group F (7-15)		56-13N 92-13E	IIID		9									Late	66				U/C
Group G(16-21)		56-15N 91-45E	IIID		2									Mid			66		U/C
IMENI GASTELLO																			
Site A(1)		51-03N 66-06E	IIIC		1									Mid		66			U/C
Site B(2)		51-06N 66-02E	IIIC		1									Mid		66			U/C
Site C(3)		51-10N 66-06E	IIIC		1									Mid		66			U/C
Site D(4)		51-07N 66-13E	IIIC		1									Mid		66			U/C
Site E(5)		51-13N 66-13E	IIIC		1									Mid	66				U/C
Site F(6)		51-13N 66-05E	IIIC		1									Mid			66		U/C
Site G(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 I(9)		50-58N 66-17E	IIIC		1									Mid		67			U/C
Site J(10)		50-52N 66-19E	IIIC		1									Early		67			U/C
Site K(11)		50-52N 65-59E	IIIC		1									Early		67			U/C
Site L (12)		50-51N 66-09E	IIIC		1									Early			67		U/C
Site M (13)		50-56N 65-49E	IIIC		1									Early			67		U/C
ITATKA																			
Site A(1)		56-59N 85-32E	IIB	2										Complete			62		Operational
Site B(2)		57-01N 85-39E	IIB	2										Complete	63				Operational
Site C(3)		56-54N 85-39E	IID	2										Complete				63	Operational

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TOP SECRET

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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	
KARTALY																			
Site A(1)		53-01N 60-26E	IIIC		1											66			U/C
Site B(2)		52-36N 60-31E	IIIC		1											66			U/C
Site C(3)		52-55N 60-24E	IIIC		1											66			U/C
Site D(4)		52-31N 60-27E	IIIC		1											66			U/C
Site E(5)		53-00N 60-16E	IIIC		1												66		U/C
Site F(6)		53-04N 60-18E	IIIC		1											66			U/C
Site G(7)		53-09N 60-42E	IIIC		1										67				U/C
Site H(8)		53-08N 60-34E	IIIC		1										67				U/C
Site I(10) Probable		53-09N 60-25E	IIIC		1											67			U/C
Site J (12) Probable		53-12N 60-39E	IIIC		1												67		U/C
Site K(11)		53-12N 60-32E	IIIC		1														U/C
Site L Possible		53-12N 60-11E	IIIC																U/C
Site M Possible		53-05N 60-07E	IIIC																U/C
KOSTROMA																			
Site A(1)		58-02N 41-22E	IIB	2												62			Operational
Site B(2)		58-02N 41-07E	IIB	2												62			Operational
Site C(3)		57-59N 41-09E	IIB	2													62		Operational
Site D(4)		58-05N 41-40E	IIB	2											63				Operational
Site E(5)		57-58N 41-14E	IIIA		3													63	Operational
Site F(6)		57-55N 41-10E	IID	2													63		Operational
Site G(7)		58-06N 41-32E	IID	2											64				Operational
KOZELSK																			
Site A(3)		53-54N 35-45E	IIC	2													63		Operational
Site B(2)		53-48N 35-47E	IIC	2														63	Operational
Site D(4)		53-54N 35-51E	IIC	2														63	Operational
Site E(5)		53-51N 35-41E	IIIB		3											64			Operational
Site F(6)		53-41N 35-39E	IIIB		3													64	Operational
NOVOSIBIRSK																			
Site A(2)		55-19N 83-10E	IIB	2											63				Operational
Site B(1)		55-19N 83-02E	IIIA		3											63			Operational
Site C(3)		55-23N 82-54E	IIIA		3												64		Operational
Site D(4)		55-22N 83-14E	IID	2														63	Operational
Site E(5)		55-20N 82-56E	IID	2											64				Operational
OLOVYANNAYA																			
Site A(1)		50-54N 115-48E	IIIA		3										64				Operational
Site B(2)		50-55N 115-45E	IIIA		3													64	Operational
Site C(3)		51-01N 115-58E	IIIA		3													64	Operational
Group D (4-13)		51-04N 116-06E	IIID		10										66				U/C
Group E (14-23)		50-56N 115-58E	IIID		10												66		U/C
Group F(24)		50-51N 115-51E	IIID		5										67				U/C
Group G(25-27)		50-46N 115-42E	IIID		10										67				U/C
OMSK																			
Site A(1)		55-09N 73-38E	IIIB		3										64				Operational
PERM																			
Site A(1)		57-41N 56-11E	IIB	2												62			Operational
Site B(2)		57-44N 55-55E	IIB	2														62	Operational
Site C(3)		57-38N 56-07E	IIB	2													63		Operational
Site D(6)		57-42N 55-47E	IID	2														63	Operational
Site E(5)		57-45N 56-00E	IID	2											64				Operational
Site F(4)		57-41N 56-04E	IIIA		3													64	Operational
Group G(7-16)		57-43N 56-07E	IIID		10										66				U/C
Group H (17) 1/		57-46N 55-49E	IIID		1													66	U/C
PLESETSK																			
Site 1(1)		62-56N 40-27E	IA	2											60				Operational
Site 2(2)		62-56N 40-32E	IA	1											60				Operational
Site 3(3)		62-58N 40-41E	IA	1												60			Operational
Site A(4)		62-59N 40-47E	IIA	2													61		Operational
Site B(5)		63-03N 40-57E	IIB	2												62			Operational
Site C(6)		63-01N 40-53E	IIIA		3										63				Operational
Site D(8)		62-54N 40-47E	IIC	2													63		Operational
Site E(7)		62-51N 40-35E	IIC	2													63		Operational
Site F 2/		62-52N 40-44E																	
Site G(9) Probable		62-53N 40-51E	IB	2															U/C
Site H(10) Probable		62-53N 40-52E	IB	2															U/C

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TOP SECRET

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	
SHADRINSK																			
Site A(1)		56-09N 63-51E	IIIA		3									Complete					Operational
Site B(2)		56-10N 64-02E	IIIA		3									Complete	64				Operational
Site C(3)		56-07N 63-57E	IIIA		3									Complete				64	Operational
SVOBODNYY																			
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)		51-43N 128-00E	IID	2										Complete				63	Operational
Site F(5)		51-52N 128-13E	IID	2										Complete				63	Operational
Site G(7)		51-38N 127-58E	IIIA		3									Complete				64	Operational
Site H(8)		52-03N 128-06E	IID	2										Complete	64				Operational
TATISHCHEVO																			
Group A(1-11)		51-48N 45-39E	IIID		10									Late				65	U/C
Group B(12-21)		51-33N 45-29E	IIID		10									Mid			66		U/C
Group C(22-27)		51-30N 45-15E	IIID		8									Mid			66		U/C
Group D(28-29) 3/		51-29N 45-34E	IIID		4									Early	67				U/C
TEYKOVO																			
Site A(1)		56-55N 40-27E	IIB	2										Complete		62			Operational
Site B(2)		56-56N 40-33E	IIB	2										Complete		62			Operational
Site C(3)		56-55N 40-17E	IIB	2										Complete	63				Operational
Site D(4)		56-59N 40-40E	IID	2										Complete				63	Operational
Site E(5)		56-49N 40-10E	IID	2										Complete				63	Operational
Site F(6)		56-55N 40-22E	IID	2										Complete		64			Operational
TYUMEN																			
Site A(3)		56-52N 65-34E	IIC	2										Complete				63	Operational
Site C(2)		56-51N 65-27E	IIC	2										Complete				63	Operational
UZHUR																			
Site A(1)		55-20N 88-43E	IIIC		1									Mid	66				U/C
Site B(2)		55-18N 89-38E	IIIC		1									Mid	66				U/C
Site C(3)		55-20N 89-33E	IIIC		1									Mid	66				U/C
Site D(4)		55-17N 89-26E	IIIC		1									Mid	66				U/C
Site E(5)		55-13N 89-33E	IIIC		1									Mid	66				U/C
Site F(6)		55-25N 89-39E	IIIC		1									Late	66				U/C
Site G(7)		55-22N 89-27E	IIIC		1									Early			66		U/C
Site H(8)		55-19N 89-20E	IIIC		1									Mid			66		U/C
Site I (9)		55-13N 89-21E	IIIC		1									Mid			66		U/C
Site J(10)		55-12N 89-09E	IIIC		1									Early	67				U/C
Site K(11)		55-16N 89-10E	IIIC		1									Mid	67				U/C
Site L(12)		55-08N 89-37E	IIIC		1									Mid		67			U/C
Site M(13)		55-13N 89-42E	IIIC		1									Early		67			U/C
Site N(14)		55-25N 89-15E	IIIC		1									Early		67			U/C
Site O(15)		55-05N 89-48E	IIIC		1									Early		67			U/C
Site P(16)		55-01N 89-33E	IIIC		1									Early		67			U/C
Site Q(17)		55-02N 89-43E	IIIC		1									Early		67			U/C
VERKHNYAYA SALDA																			
Site A(2)		58-09N 60-16E	IIB	2										Complete	62				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	IIIA		3									Complete		63			Operational
Site G(8)		58-13N 60-49E	IIIA		3									Complete			63		Operational
Site H(9)		58-05N 60-13E	IID	2										Complete				63	Operational
Site I(10)		58-09N 60-32E	IID	2										Complete				63	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	
YEDROVO																			
Site A(2)		57-48N 33-36E	IIB	2										Complete					Operational
Site B(1)		57-48N 33-14E	IIB	2										Complete				62	Operational
Site C(5)		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	IIIA		3									Complete		63			Operational
Site F(6)		57-44N 33-06E	IID	2										Complete			63		Operational
Site G(7)		57-47N 33-02E	IID	2										Complete	64				Operational
Site I(3)		57-52N 33-27E	IIIA		3									Complete				63	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
YURYA																			
Site A(2)		59-10N 49-32E	IIA	2										Complete				61	Operational
Site B(1)		59-09N 49-40E	IIA	2										Complete					Operational
Site C(3)		59-13N 49-25E	IIB	2										Complete	62				Operational
Site D(4)		59-16N 49-22E	IIB	2										Complete		62			Operational
Site E(5)		59-23N 49-17E	IIIA		3									Complete				62	Operational
Site F(7)		59-21N 49-14E	IIB	2										Complete	63				Operational
Site G(6)		59-04N 49-51E	IIIA		3									Complete	64				Operational
Site H(8)		59-11N 49-47E	IID	2										Complete				63	Operational
Site I(11)		59-21N 49-25E	IID	2										Complete	64				Operational
Site J(9)		59-06N 49-45E	IID	2										Complete	64				Operational
Site K(10)		59-13N 49-18E	IIIA		3									Complete				64	Operational
ZHANGIZ-TOBE																			
Site A(1)		49-12N 81-00E	IIIC		1									Mid	66				U/C
Site B(2)		49-16N 80-59E	IIIC		1									Mid	66				U/C
Site C(3)		49-11N 80-54E	IIIC		1									Mid		66			U/C
Site D(4)		49-10N 81-04E	IIIC		1									Mid			66		U/C
Site E(5)		49-06N 81-03E	IIIC		1									Mid			66		U/C
Site F(6)		49-08N 80-58E	IIIC		1									Mid				66	U/C
Site G (7)		49-19N 80-50E	IIIC		1									Mid		67			U/C
Site H (8)		49-26N 80-57E	IIIC		1									Early		67			U/C
Site I (9)		49-25N 80-49E	IIIC		1									Mid		67			U/C
Site J (10)		49-21N 80-58E	IIIC		1									Mid		67			U/C
Site K (11) Possible		49-17N 81-05E	IIIC																
Totals			252	150	259														

*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).

1/ See 19th Revision, page 9.

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

3/ See 19th Revision, page 9.

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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)		45-55N 63-21E	I	1										Complete	Operational
A2		45-55N 63-21E	I	1										Complete	Operational
A3(15)		45-54N 63-20E	IIIC ρ		1									Complete	Operational
A4			I	1										Complete	Operational
Complex B1(2)		46-00N 63-34E	IA ρ	1										Complete	Operational
B2(16)		45-59N 63-33E	IIIC		1									Complete	Operational
B3(17)		46-00N 63-34E	II	1										Complete	Operational
Complex C1(3)		45-48N 63-39E	II ρ	1										Complete	Operational
C2		45-48N 63-39E	II	1										Complete	Operational
C3		45-48N 63-39E	II	1										Complete	Operational
Complex D1(4)		45-59N 63-57E	IIIA ρ		3									Complete	Operational
D2(9)		45-59N 63-57E	IIIA		3									Complete	Operational
Complex E1(6)		45-48N 63-12E	IIC ρ	1										Complete	Operational
E2		45-48N 63-12E	IIC	1										Complete	Operational
E3		45-48N 63-12E	IIC	1										Complete	Operational
Complex F(5)		46-02N 63-06E	IIIB ρ		3									Complete	Operational
Complex G1/G2(7)		46-03N 62-56E	I	2										Complete	Operational
G3/G4(11)		46-03N 62-56E	I	2										Complete	Operational
G5/G6(12)		46-05N 62-54E	II	2										Complete	Operational
G7(18)		46-04N 62-56E	IIIC ρ		1									Mid	U/C
G8/G9(19)		46-04N 62-57E	III		2									Complete	Operational
Complex H(8)		45-59N 63-42E	I	2										Complete	Operational
Complex I1(14)		45-56N 63-26E	IIIC ρ		1									Complete	Operational
Complex I2		45-56N 63-26E	III		1									Mid	U/C
Complex J		45-54N 63-64E	I	2										Early	U/C
Complex K1/K2 (13)		46-02N 63-03E	IIIC ρ		2									Mid	U/C
K3(20)		46-02N 63-02E	IIID ρ		1									Late	Operational
Launch Group L (21-30)		46-03N 62-59E	III		10									Late	U/C
Total				21	29										

*TDI site designators are indicated in parentheses.

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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		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		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						
KAMENNYY MOST		47-58-00N 30-53-15E	IV	3		Complete
SEMENOVKA 1		47-58-45N 30-59-00E	IV	3		Complete
SEMENOVKA 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		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
GROZNYY 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	ESTIMATED 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						
KURDZHIPSKAYA		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		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		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						
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	Const	
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 MRBM ρ	--	4									Complete, being modified	Undetermined
Launch Site 4C2		48-33N 46-17E	Type IV IRBM ρ	--	3									Complete	Operational
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,
ρ 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		57-15-15N 26-41-15E			4
Gulbene		57-16-30N 26-54-30E			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		48-53-30N 026-13-30E			4
Skala Podolskaya 2		48-52-30N 026-16-00E			4
BREST					
Pishcha		51-35-15N 23-46-45E			4
Zamshany		51-50-05N 24-02-05E			4
BRODY					
Yazlovchik		50-05-45N 25-02-00E			4
Stanislavchik		50-07-00N 24-56-30E			4
DERAZHNYA					
Khmelnitskiy		49-25-00N 27-06-30E			2
Letichev 1		49-22-45N 27-43-45E			4
Letichev 2		49-25-15N 27-45-00E			4
DISNA					
Dernovichi		55-47-45N 28-20-00E			4
Demidovo		56-01-15N 28-18-45E			4
DOLINA					
Berezhnitsa		49-12-45N 23-57-30E			4
Rakuv		48-58-21N 24-05-35E			4
DYATLOVO					
Ruda Yavorskaya 1		53-23-15N 25-10-30E			4
Ruda Yavorskaya 2		53-23-15N 25-12-45E			5
Ruda Yavorskaya 3		53-23-15N 25-13-30E			4
Berezovka		53-42-30N 25-30-30E			4
GOMEL					
Gomel 1		52-20-45N 30-51-30E			4
Gomel 2		52-24-30N 30-50-30E			4

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TABLE 7. (Continued)

LOCATION*	BE NUMBER	COORDINATES	NEGATION DATE	FIRST OBSERVED	NO OF LAUNCH POSITIONS
GUSEV					
Tolmingkemsk		54-22-15N 22-20-15E			4
GVARDEYSK					
Geroyskoye		54-45-45N 21-25-15E			2
Vysokoye		54-44-30N 21-33-45E			4
JELGAVA					
Jelgava 1		56-38-45N 23-52-45E			2
Jelgava 2		56-44-15N 23-55-15E			4
JONAVA					
Kaisiadorys		54-59-30N 24-29-00E			4
KAMENETS-PODOLSKIY					
Yarmolintsy		49-12-00N 26-46-45E			4
Vinkovtsy		48-58-20N 27-12-05E			4
KIVERTSY					
Kivertsy		50-50-00N 25-25-00E			4
KONKOVICHI					
Novoselki 1		52-23-00N 28-42-45E			4
Novoselki 2		52-25-45N 28-41-00E			4
KOROSTEN					
Litki 1		51-01-30N 28-27-45E			4
Yemilchino 1		50-52-30N 27-53-00E			4
Yemilchino 2		50-52-00N 27-53-00E			4
Litki 2		51-01-15N 28-24-15E			2
KOZHANOVICHI					
Lyudenevichi		52-18-00N 27-42-30E			4
KRASNOZNAMENSK					
Krasnoznamensk		54-57-30N 22-35-00E			4
Sudargas		55-00-30N 22-35-00E			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
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
				TOTAL	348

*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		64-25-45N	34-18-15E	III IRBM										2 barracks-type bldgs & RIM bldg removed on [redacted] bunkers between never completed
Fedorovka Traktovyy		63-25-15N	62-23-00E	III IRBM										2 barracks-type bldgs removed on [redacted]
Kraskino Kraskino		42-44-00N	130-40-15E	II MRBM										2 barracks-type bldgs, 1 small bldg, & a RIM bldg removed on [redacted]
Marina Gorka Marina Gorka		63-26-30N	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										1 barracks-type bldg & RIM bldg removed on [redacted] 1 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	1	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)	[redacted]							
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 1 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 (last fired [redacted] 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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