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**NEW LAUNCH AREA AND OTHER DEVELOPMENTS
MISSILE LAUNCHING COMPLEX
TYURA TAM, USSR**

**A Comparative Analysis of
1957, 1959 and 1960 Photography**

MINICARD COPY

PIC/JR-17/60

JULY 1960

Declassification review by NIMA/DOD

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PREFACE

This joint photographic intelligence report has been prepared by the Army, Navy, and Central Intelligence Agency. It supplements CIA/HTA/JR-4/58 and CIA/PIC/JR-2/60, using April 1960 photography to update previous analyses of the Tyura Tam Missile Launching Complex. It is confined primarily to a detailed analysis of new developments and, to a reanalysis, where required, of previously identified features. It is not intended to supplant previous reports; accordingly, descriptions of those facilities at Tyura Tam not covered by April 1960 photography have not been included.

The extensive cloud cover over the Complex at the time of April 1960 photography prevents conclusive analysis of a majority of the facilities at Tyura Tam. Where comparison is made between new and old facilities, therefore, analysis of older facilities is based on July 1959 rather than April 1960 photography.

- 3 -

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PIC/JR-17/60

TABLE OF CONTENTS

	Page
INTRODUCTION	7
LAUNCH AREA "C"	9
LAUNCH SUPPORT AREA "C"	15
CONSTRUCTION SUPPORT AND HOUSING AREA	17
LAUNCH SUPPORT AREA "A"	21
CONCLUSIONS	25

TABLE OF ILLUSTRATIONS

FIGURE 1. TYURA TAM MISSILE LAUNCHING COMPLEX	8
FIGURE 2. LAYOUT OF LAUNCH AREA "C" AND LAUNCH SUPPORT AREA "C"	11
FIGURE 3. PERSPECTIVE DRAWING OF LAUNCH AREA "C"	12
FIGURE 4. PHOTOGRAPH OF LAUNCH AREA "C" AND LAUNCH SUPPORT AREA "C"	14
FIGURE 5. LAUNCH AREA 2-C AT KAPUSTIN YAR	15
FIGURE 6. CONSTRUCTION SUPPORT AND HOUSING AREA	18
FIGURE 7. DRIVE-THROUGH BUILDING AT MISSILE CHECKOUT AND ASSEMBLY FACILITY NO 2, TYURA TAM	22
FIGURE 8. COMPARISON OF MISSILE CHECKOUT AND ASSEMBLY FACILITY NO 2, TYURA TAM, AND ASSEMBLY AND CHECKOUT AREA AT LAUNCH COMPLEX "D", VLADIMIROVKA	24

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INTRODUCTION

On April 1960 photography the Tyura Tam Missile Launching Complex is largely cloud covered. However, breaks in the clouds reveal one highly significant new item: a new launch area, radically different in concept from the two older launch facilities, is under construction (see Figure 1). The new area, designated Launch Area "C" in this report, will contain at least two road-served launch pads when completed. In contrast to the older launch areas at Tyura Tam, there is no evidence of a requirement for a large pit, and there is a marked difference in the size and complexity of facilities. Analysis of Launch Area "C" indicates that emphasis on Soviet ICBM development evidenced at Tyura Tam may have expanded from missile development and space vehicle programs to a testing of operational deployment concepts. The new launch area may also be designed to carry out a troop training program, although this cannot be substantiated from photography.

The launching facilities of both Launch Area "A" and Launch Area "B" are completely cloud covered, although at both areas portions of the support facilities are visible. The Construction Support and Housing Area east of Launch Area "B" is relatively cloud-free and construction has proceeded approximately as anticipated in CIA/PIC/JR-2/60. A small portion of Launch Support Area "A", including Missile Checkout and Assembly Facility No. 2, is visible and appears virtually unchanged since July 1959.

Other facilities in the Complex which can be identified from April 1960 photography include a small portion of the Propellant Production and Storage Area, approximately ten percent of Tyura Tam Support Base, and random segments of the road and rail system through the Complex.

This report is primarily concerned with Launch Area "C". Discussion of those portions of Launch Support Area "A" and the Construction Support and Housing Area which are visible on photography is limited primarily to those items which have changed since previous coverage. As in JR-2/60, green overprint on line drawings indicates the changes.

- 7 -

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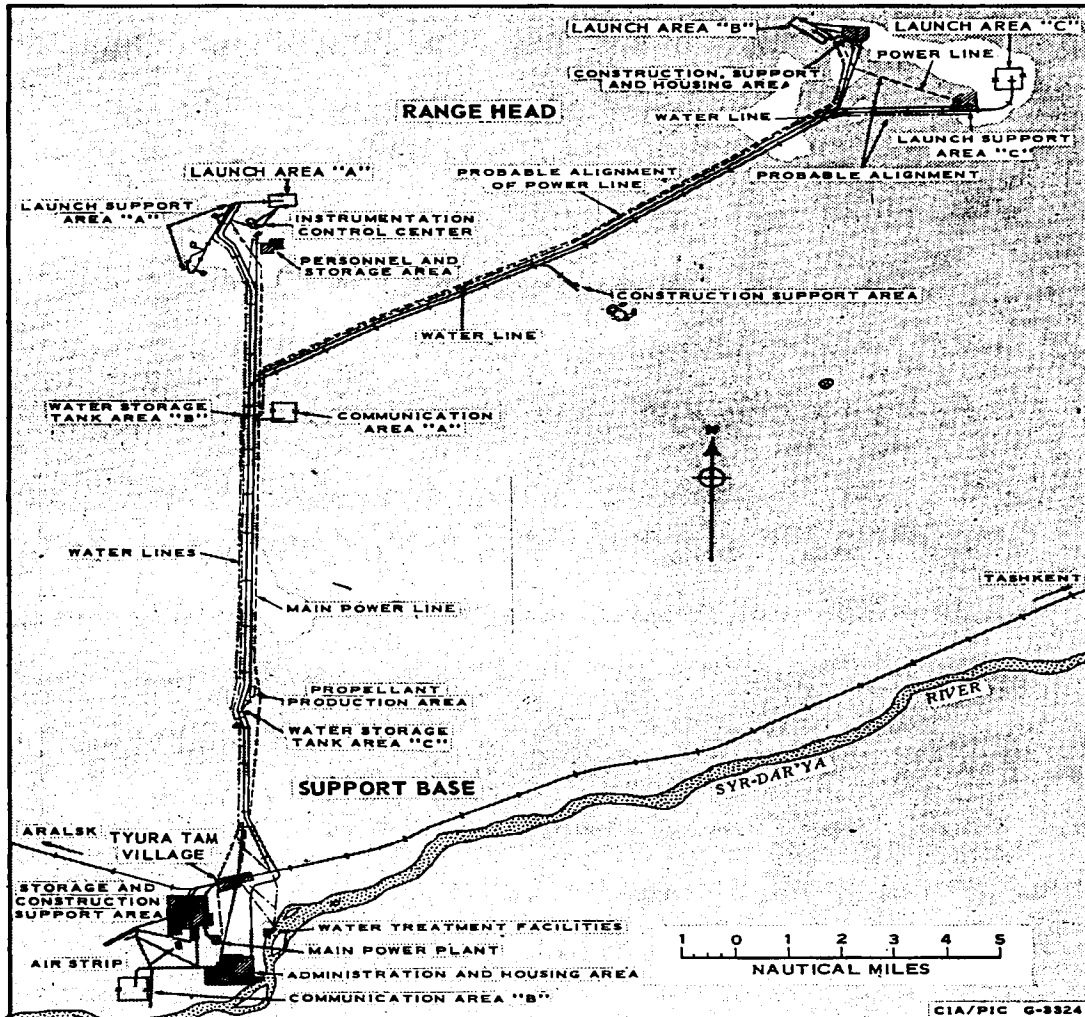


FIGURE 1. TYURA TAM MISSILE LAUNCHING COMPLEX. Green denotes additions since July 1959, which include Launch Area "C" under construction. The complex was largely cloud-covered on April 1960 photography.

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LAUNCH AREA "C"

Launch Area "C", in an early stage of construction, is located 4.3 nm southeast of Launch Area "B", at approximately 45°58'00"N 63°39'40"E (see Figure 1). A branch rail line, with a parallel water line and all-weather road, leaves the rail line serving Launch Area "B" at a point 2.3 nm south of the Construction Support and Housing Area, and extends approximately 3.5 nm in an easterly direction to serve the new launch area.

On July 1959 photography the only sign of activity at Launch Area "C" was a single vehicle track which generally followed the same alignment as the road and rail line now serving the area. The road and rail turned north to Launch Area "B" at the same point where the branch line to Launch Area "C" now originates, suggesting that construction of Launch Area "C" may have been contemplated prior to July 1959.

The double-fenced launch area (Figures 2, 3, and 4) is in an early stage of construction. Identifiable within the area are two launch sites under construction which will probably be road-served, a probable control bunker, two semiburied tanks under construction, four possible cylindrical tanks, and three buildings under construction. The area is served by a single rail line which does not appear to serve either of the two launch pads. Three flat cars, [redacted] long, are located on the spur near its northern terminus. A detailed description of facilities within the launch area follows. Numbers preceding the descriptions correspond to those on Figure 2.

(1) Launch Site 1-C, under construction. The probable launch point will be over a structure 50 by 35 feet which is being built in an excavation approximately 100 feet across. East of the excavation is a structure 145 by 35 feet, oriented generally north/south. It contains seven vehicle stalls varying in width from [redacted]. Three of the stalls are being roofed over. A vehicular crane and several other construction vehicles are at work in the area.

- 9 - 4

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(2) Launch Site 2-C, under construction. The general configuration of this site is similar to that of Launch Site 1-C, except that there are nine vehicle stalls instead of seven, and all of the stalls have been roofed over. An enclosed structure with a parapet roof higher than the stalls on either side of it separates four stalls on the south from five on the north side. In addition, construction scars and configuration of the surface indicate that the launch substructure has been covered over with earth. There is no evidence of concrete work suggestive of a launch pad.

(3) Probable Control Bunker. This structure, 60 by 45 feet, has been built in a rectangular excavation sufficiently deep to place the roof of the bunker at ground level. A deep trench, possibly for cabling, has been dug between the bunker and Launch Site 1-C. A second, shallower trench will probably connect the bunker and Launch Site 2-C.

(4) Building under construction, 160 by 45 feet.

25X1

25X1

25X1

A circular tank 15 feet in diameter is being buried 75 feet north of the building.

25X1

25X1

(5) Two semiburied water tanks, [redacted] under construction. Adjacent to the tanks are three additional tank sections. [redacted]

25X1

25X1

A small building, probably a valve house, has been constructed near the tanks.

(6) Earth embankment, 375 by 50 feet. It will probably support a road which will serve Launch Site 1-C.

(7) Curved earth embankment, approximately 325 by 50 feet. The east end of this embankment will probably terminate at Launch Site 2-C, and the west end in the vicinity of the building (Item 4) near the terminus

- 10 -

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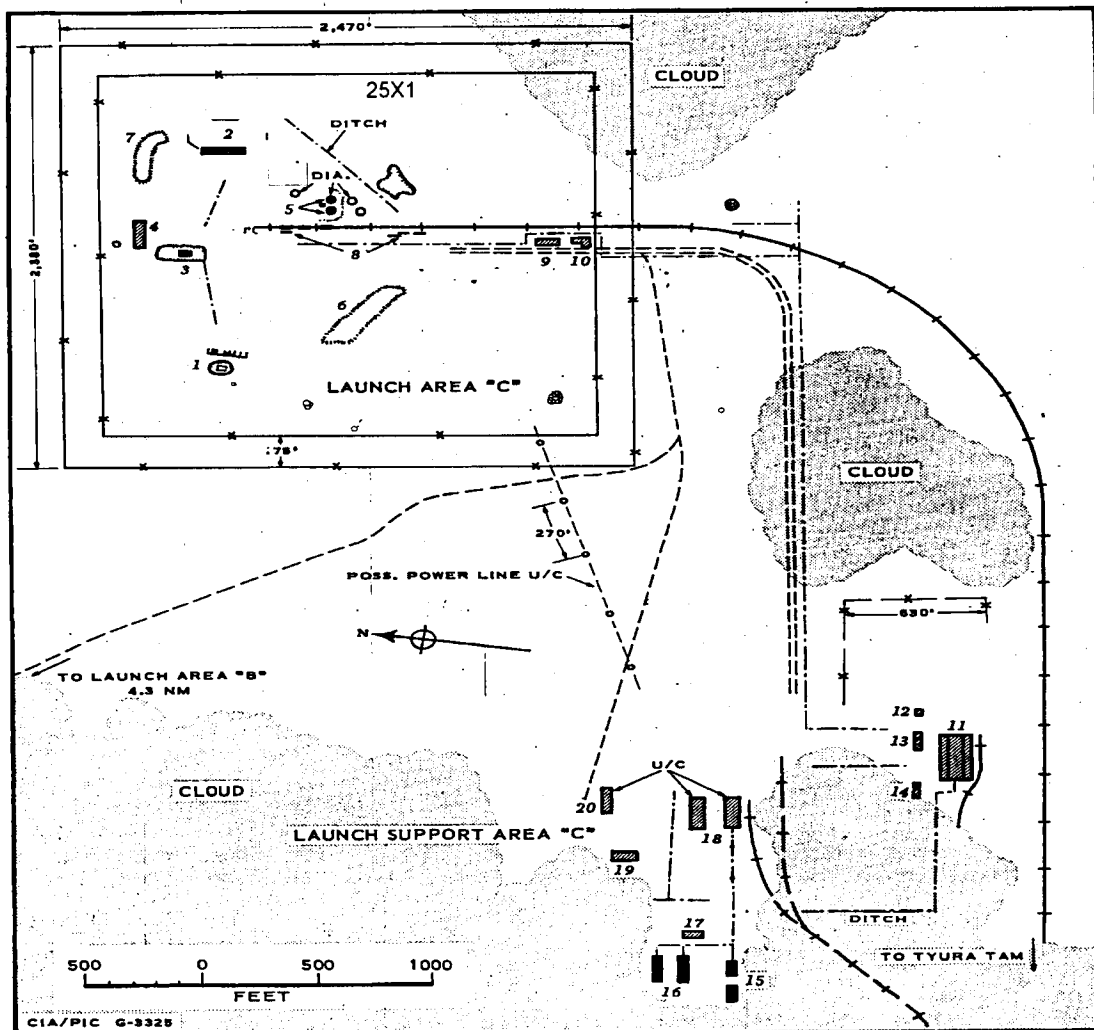
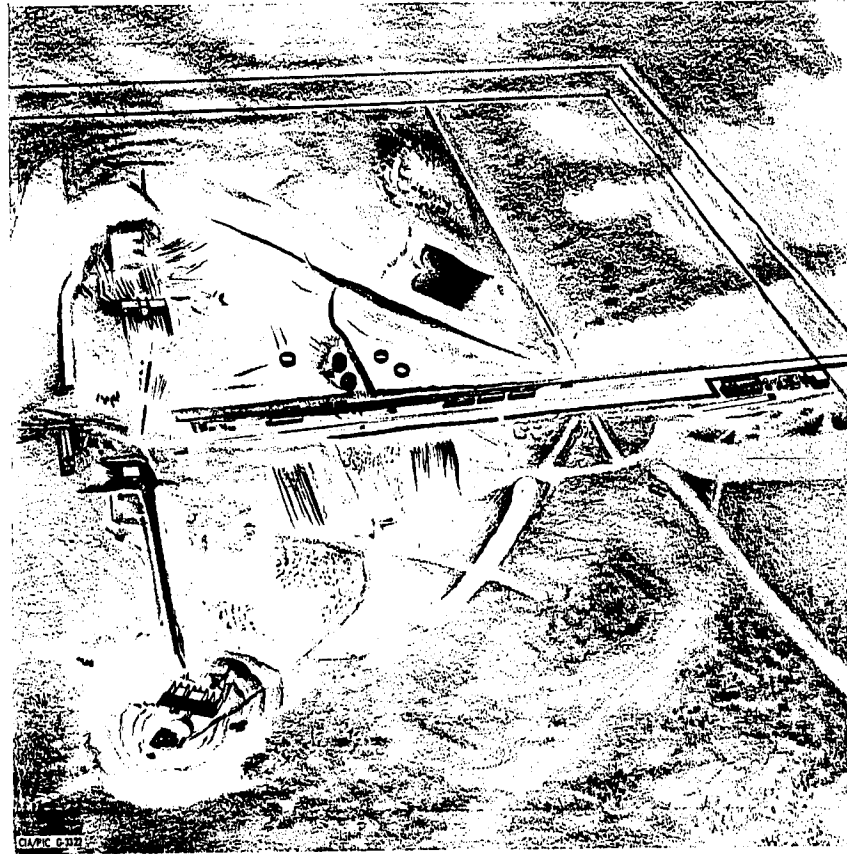


FIGURE 2. LAYOUT OF LAUNCH AREA "C" AND LAUNCH SUPPORT AREA "C". A single vehicle track appeared in this area on July 1959 photography.

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FIGURE 3. LAUNCH AREA "C". This area apparently represents a new phase in ICBM development at Tyura Tam.

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of the rail line. The abrupt change in direction between the embankment and the alignment of the rail line indicates that the embankment will probably support a road. The alignment of both road embankments relative to the launch sites and the probable alignment of the service road (parallel to the rail line) suggests that the two sites will be served by nearly identical "mirror-image" loop service roads.

25X1

(8) Four possible cylindrical tanks,

(9) Building under construction, 95 by 35 feet.

25X1

(10) Building under construction,

Launch Area "C" represents a radical departure from previous concepts noted at Tyura Tam. The layout of the launch area and the configuration of the launch sites have no counterpart in Launch Areas "A" or "B". Furthermore, the launch sites at Launch Area "C" probably will not be rail-served. Lastly, Launch Area "C" will be the first launch area at Tyura Tam to have two launch sites in one area.

The new concept of operation evidenced at Launch Area "C" apparently represents a new phase in Soviet ICBM development. Launch Areas "A" and "B" appear best suited for ICBM research and development and space vehicle launchings. Neither of these launch areas appears to satisfy a requirement for testing prototype operational launch concepts or for troop training in ICBM firing. In addition, Soviet missile development practices evidenced at Kapustin Yar indicate that an additional facility designed specifically for operational testing and troop training would probably be required at Tyura Tam.

Launch Area "C", when completed, will probably be capable of testing deployment concepts involving much simpler launching facilities than those employed at the older launch areas, with emphasis on a rail-to-road system rather than on an entirely rail-supported launch system. A two-pad facility would, in addition, provide more flexibility for a training requirement. Cloud cover over the majority of Launch Support Area "C" prevents

- 13 -

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FIGURE 4. LAUNCH AREA "C" AND LAUNCH SUPPORT AREA "C". The areas are visible through a break in the clouds on photography of April 1960.

determination of the existence of extensive troop billeting facilities. Accordingly, no positive evidence exists to identify this launch area as a training facility.

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- 14 -

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LAUNCH SUPPORT AREA "C"

It is impossible to determine the extent of Launch Support Area "C", since only a few buildings and roads are discernible through the clouds (see Figures 2 and 4). The most significant facility in the area is a missile assembly and checkout building under construction.

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Construction activity at Launch Support Area "C" is at a stage comparable with construction at the launch area. The majority of the buildings are incomplete, little or no permanent road net is visible between facilities, and considerable open ditching and earth scarring are evident throughout the area. A small portion of a second rail spur north of the assembly and checkout building is visible. Clearings spaced at regular intervals along the ground between Launch Support Area "C" and Launch Area "C" suggest that a power line will connect the two areas. At present, however, no poles are visible. A detailed description of buildings in Launch Support Area "C" follows. Numbers preceding the description correspond to those on Figure 2.

25X1

(11) Assembly and checkout building, monitor roofed, [redacted] The bay on the north side, 30 feet wide, is approximately 40 feet high. The clerestory center section, 70 feet wide, is 60 feet high. The bay on the south side is 30 feet wide and 25 feet high. Two tower cranes are in operation, one on each side of the building. The west end of the building is visible on oblique photography and appears to have two doors, each about 20 feet wide and about 40 feet high, providing access to the monitor section. When completed, the building will probably have road and rail access at the west end, but there is no evidence at present of construction work on either a road or a rail bed east of the building.

- (12) Building under construction, 35 by 25 feet.
- (13) Building under construction, 85 by 30 feet.
- (14) Building under construction, 85 by 30 feet. The east end of this building has been roofed over.
- (15) Two hip-roofed buildings, 80 by 55 feet.
- (16) Two gable-roofed buildings, 160 by 45 feet.
- (17) Building foundation, 70 by 35 feet.
- (18) Two buildings under construction, 160 by 50 feet.
- (19) Footings for building, 140 by 60 feet.
- (20) Footings for building, 130 by 60 feet.

- 16 -

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CONSTRUCTION SUPPORT AND HOUSING AREA

Facilities visible in the vicinity of Launch Area "B", shown on Figure 6, include most of the Construction Support and Housing Area, a portion of the branch road and rail line, and the reverted explosives storage site east of the Construction Support and Housing Area.

Construction activity in the Construction Support and Housing Area has proceeded at approximately the pace anticipated in JR-2/60, and is continuing. While the launch area itself is not visible, if the status of construction activity there is at a comparable stage, it is probably not yet operational.

The vertical photography of the Construction Support and Housing Area provides a more accurate basis for identification and measurement of facilities than the far oblique 1959 photography. Based on the new photography, the functional analysis of several areas has been revised.

Major facilities within the area include two housing sections (one of which was previously designated Storage and Maintenance Facility), a Storage and Construction Support Facility (previously designated Construction Material Dump), four fenced open storage sections, a concrete batch plant, and a steam plant. Rail service in the area has been expanded. Although roads have not been improved since July 1959, there has been considerable expansion of vehicle trackage, particularly to the east where a number of tracks converge on an area obscured by clouds.

Housing Sections: Of the two housing sections in the Construction Support and Housing Area, only the section west of the rail spur (Housing Section West) has been expanded since July 1959. It now contains 23 barracks-type buildings, capable of housing about 1,000 persons. Eight buildings are still under construction, and ditching for a steam line is still open. Details on buildings within this section are given in Table 1.

Housing Section East (previously designated Storage and Maintenance Facility) remains essentially unchanged since July 1959. However, construction work continues in the section, as evidenced by a new steam line

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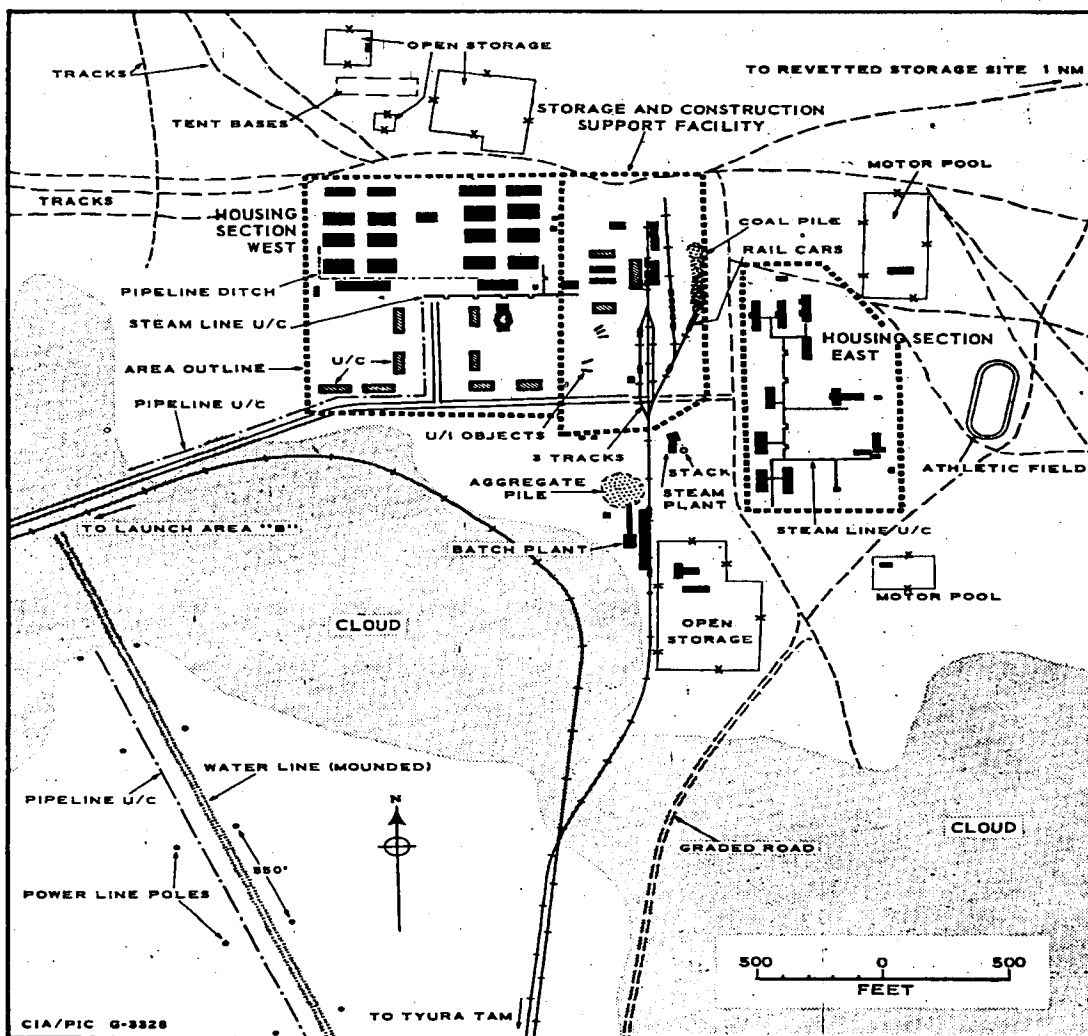


FIGURE 6. CONSTRUCTION SUPPORT AND HOUSING AREA. Additions since July 1959 are shown in green.

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TABLE 1. STRUCTURES IN HOUSING SECTION WEST

<u>No of Buildings</u>	<u>Probable Function</u>	<u>No of Stories</u>	<u>Dimensions (Feet)</u>	<u>Status</u>
1	Barracks	1	210 x 60	Complete
1	Barracks	1	160 x 70	Complete
1	Barracks	1	160 x 65	Complete
2	Barracks	-	150 x 45	U/C
2	Barracks	-	150 x 35	U/C
2	Mess Hall	1	145 x 45	Complete
8	Barracks	1	130 x 60	Complete
4	Barracks	2	130 x 60	Complete
2	Barracks	-	130 x 55	U/C
2	Barracks	-	120 x 55	U/C
2	Mess Hall	1	120 x 45	Complete
1	Administrative	1	80 x 50	Complete
1	Utility	-	30 x 15	U/C

TABLE 2. STRUCTURES IN HOUSING SECTION EAST

<u>No of Buildings</u>	<u>Probable Function</u>	<u>Roof Design</u>	<u>Dimensions (Feet)</u>	
1	Administrative	Gable	160 x 30	
1	Administrative	Gable	180 x 30	
2	Barracks	Gable	145 x 40	
4	Barracks	Hip	130 x 45	
1	Administrative With wings	Gable	120 x 35 90 x 30	
1	Administrative With 2 wings	Flat	150 x 30 30 x 30	
1	Utility	Flat		25X1

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ditch connecting the buildings, and by a gable-roofed addition to one of the buildings. The section contains 11 single-story buildings, as shown in Table 2. The six barracks-type buildings will be capable of housing about 250 persons.

Storage and Construction Support Facility: This section, previously designated Construction Material Dump, has been redesignated because of the number of permanent storage facilities which have been added. The section contains ten buildings, eight of which have been added since July 1959. The buildings range in size from 190 by 60 feet to 80 by 55 feet and are all single-story. Three of the larger buildings have been constructed along the main rail spur and appear to be storage buildings.

Two new rail spurs have been added in the area, and a 500-foot long section of the original spur has been widened to three tracks. Thirteen rail cars, including three tank cars, a possible power generator car, and a rail crane car, are scattered throughout the area.

25X1

Five unidentified cylindrical objects, | in diameter, are scattered throughout an open area west of the rail line.

Open Storage Sections: There are four fenced storage sections in the Construction Support and Housing Area, two of which have been added since July 1959. The sections are all fenced, and comprise a total of about 10 acres. The type of material contained within the storage sections cannot be determined. The storage section south of the Storage and Construction Support Facility contains two single-story gable-roofed buildings, with a total floor space of 5,000 square feet.

Motor Pools: The two motor pools visible in 1959 photography have not been enlarged, but both are now fenced. The larger motor pool, 580 by 420 feet, contains some 50 vehicles, mostly cargo trucks; the smaller motor pool, 220 by 175 feet, contains 9 or 10 vehicles.

Steam Plant: Since 1959 a stack has been added to the steam plant, located east of the rail line. A buried steam line leads from the plant to the smaller of the two housing sections, where it joins the open steam line

- 20 -

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ditch. The network of open steam line ditches in the larger housing section probably is also connected to the steam plant, but the buried line is not apparent.

Batch Plant: The concrete batch plant west of the rail line is unchanged since July 1959, but the pile of aggregate north of the plant is appreciably smaller. The plant includes a shed-roofed building 330 by 45 feet with rail transloading facilities. The loading tower, which measures 50 by 25 feet, is connected to a loading conveyor 200 feet long. A second, lower conveyor connects the tower and the shed-roofed building. Two rail cars are positioned on the track at either end of the shed-roofed building.

Revetted Storage Site: There is no stereo coverage of the Revetted Storage Site one mile east of the Construction Support and Housing Area, and existing photography is hazy. The site is enclosed by a single wire fence and a firebreak, and contains two earth-mounded storage bunkers, 45 feet square, and an open earth revetment.

Tent Bases: Adjacent to the smallest fenced open storage section is an area, new since July 1959, containing 53 tent bases. A tent area of similar size was located south of the Construction Support and Housing Area on July 1959 photography, and may have been moved since that time.

Power and Water: Two new power lines and a pipeline under construction are visible through a break in the clouds south of the Construction Support and Housing Area (see Figure 6). The terminal points of the pipeline and two power lines cannot be determined because of cloud cover. The pipeline and one power line parallel a mounded water line which itself was under construction in 1959. The second power line parallels the mounded water line for a short distance, and then turns east toward Launch Area "C".

LAUNCH SUPPORT AREA "A"

Although Launch Area "A" is totally obscured by clouds, a portion of Launch Support Area "A", including Missile Checkout and Assembly Facility No 2, is visible. Within Launch Support Area "A", the only change

- 21 -

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noted from previous coverage is one new barracks-type building under construction in the vicinity of annotation "A" on Figure 8, JR-2/60, and a single-story shed, 50 by 20 feet, in Missile Checkout and Assembly Facility No 2.

A portion of the multitrack railyard in the support area is also visible. Fifteen railroad cars, including five probable passenger cars about 70 feet long, are standing in the yard.

The oblique photography of Missile Checkout and Assembly Facility No 2 complements previous vertical photography of the large drive-through checkout and assembly building (see Figure 7). New mensural analysis of the building revises its dimensions to 210 by 125 feet, with a clerestory center section 175 feet long, 60 feet wide, and 70 feet high.

A light-colored railroad car, somewhat wider than normal, is positioned on the track 165 feet northeast of the drive-through building. The same car, or one similar to it, measuring 45 feet long and feet wide, was positioned on the same track at the southwest end of the building in July 1959.

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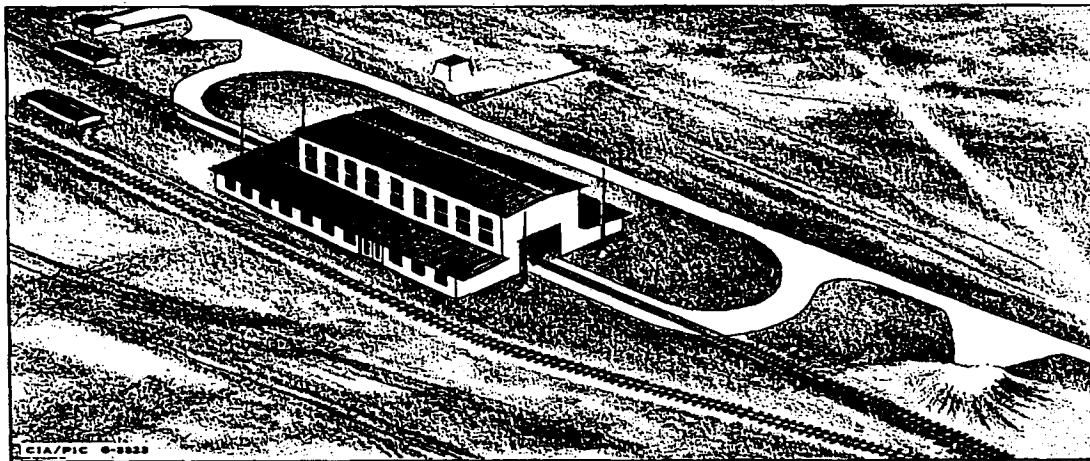


FIGURE 7, DRIVE-THROUGH BUILDING AT MISSILE CHECKOUT AND ASSEMBLY FACILITY NO 2, TYURA TAM.

- 22 -

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The oblique photography of Missile Checkout and Assembly Facility No 2 further substantiates the conclusion, stated in JR-2/60, that there are many similarities between this facility and the Assembly and Checkout Area associated with Launch Complex "D" at the Kapustin Yar/Vladimirovka Missile Test Center. A comparison of the two facilities (illustrated in Figure 8) reveals similar or identical features not only in construction details, but also in conceptual layout of the area.

The missile checkout and assembly building itself is identical in size and construction details to that at Vladimirovka. The drive-through road and rail network is laid out in a nearly identical fashion in both areas. The double wire fence at both locations encompasses a much larger area than would seem necessary for the facilities enclosed within it, and in each case the facilities are positioned at the end nearest the entrance, suggesting a capability for later expansion to the rear. Each facility also has a steam plant associated with it and each also requires some water.

25X1

Perhaps the most unique similarity between the two facilities is their relationship to the facilities which they support. In each instance the rail line serving the facility is oriented toward the supported launch area, and access by rail to the larger backup support base is not easily accomplished.

Two important dissimilarities between the two installations are also noteworthy. First, there is no counterpart at Vladimirovka for Missile Checkout and Assembly Facility No 1, an area which appears to duplicate many of the functions of Facility No 2. Secondly, there is nothing comparable at Vladimirovka to either the revetted Explosives Storage and Handling Area (previously designated Possible Test Facility) or the Possible Storage Point, both associated with Facility No 2 at Tyura Tam.

Analysis of Launch Complex "D" at Vladimirovka indicates that the Assembly and Checkout Area handles liquid propellant boosters for aerodynamic vehicles launched from Complex "D". The considerable similarities between Missile Checkout and Assembly Facility No 2 at Tyura Tam and the Vladimirovka installation suggest that Facility No 2 also handles

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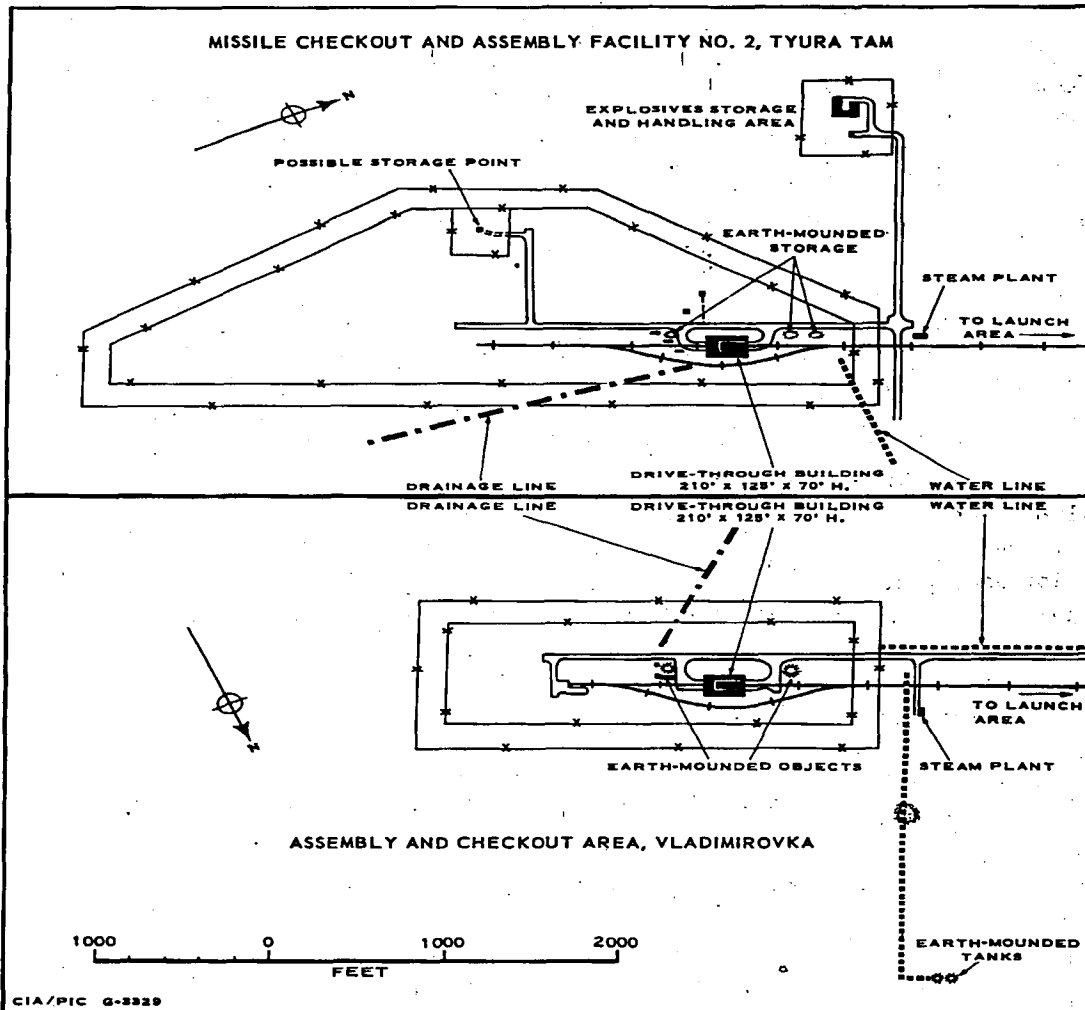
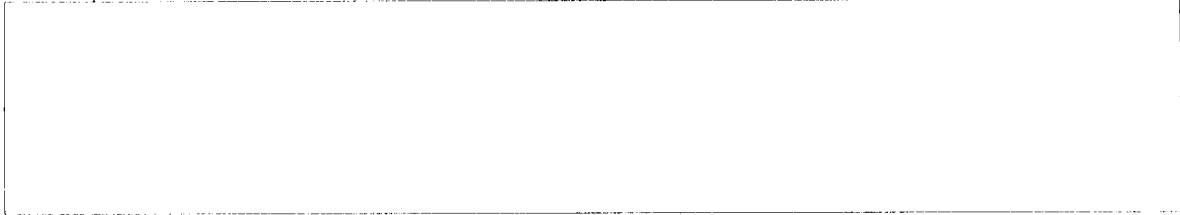


FIGURE 8. COMPARISON OF MISSILE CHECKOUT AND ASSEMBLY FACILITY NO 2, TYURA TAM, AND ASSEMBLY AND CHECKOUT AREA AT LAUNCH COMPLEX "D", VLADIMIROVKA.

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CONCLUSIONS

1. Launch Area "C", under construction at Tyura Tam, represents a new concept in Soviet ICBM development and may be capable of training troops as well as testing deployment concepts.
2. Launch Area "C" was probably part of the concept for the Tyura Tam Missile Launching Complex prior to the July 1959 photography.

25X1

3. 
4. Although it cannot be positively determined, Launch Area "B" is probably still under construction and is not yet operational.
5. The lack of expansion in those portions of Launch Support Area "A" which are visible indicates that no major changes have taken place at Launch Area "A" since July 1959.

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- 25 -

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PIC/JR-17/60

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- 26 -

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