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NPIC/R-21/62
February 1962

PHOTOGRAPHIC INTERPRETATION REPORT

ANTIMISSILE TEST CENTER

SARY SHAGAN, USSR

25X1D

CHANGES AND ADDITIONS AS OF [REDACTED]



ARMY



NAVY



AIR FORCE



CIA

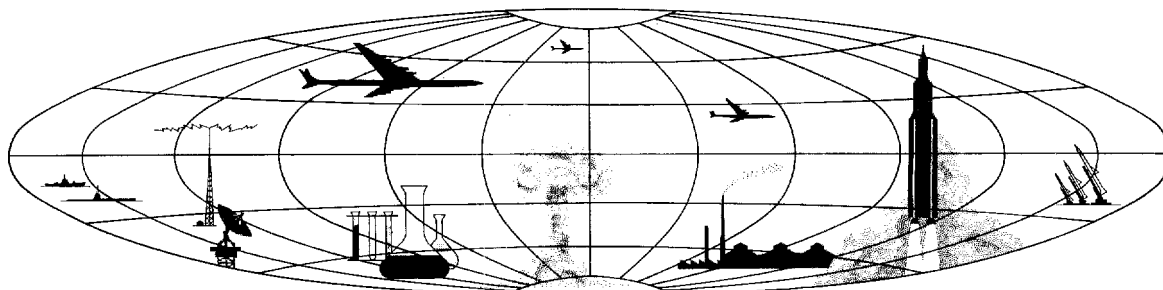


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PREFACE

25X1D This report, prepared as a result of NPIC Project JN-256/61 in answer to CIA requirement DDI/OSI/R-146/61, presents information on the Antimissile Test Center, Sary Shagan, USSR, derived from a study of [REDACTED] KEYHOLE photography. The report supplements CIA/PIC/JR-1010/61 1/ and CIA/PIC/JR-3/61. 2/

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INTRODUCTION

Photography of the Sary Shagan Antimissile Test Center from 25X1D KEYHOLE [REDACTED] covers the Support Base, Launch Complex A, and Instrumentation Sites 10 and 11 (Figure 1). No new operational complexes have been added in the visible portions of 25X1D the center since coverage of [REDACTED] but expansion is noted in the Main Housing Complex. Small scale and poor image quality precluded interpretation of Launch Complex A to the maximum desirable detail and precluded any interpretation of Instrumentation Sites 10 and 11. However, the road pattern and the relative size of areas of activity previously identified and reported on appear unchanged.

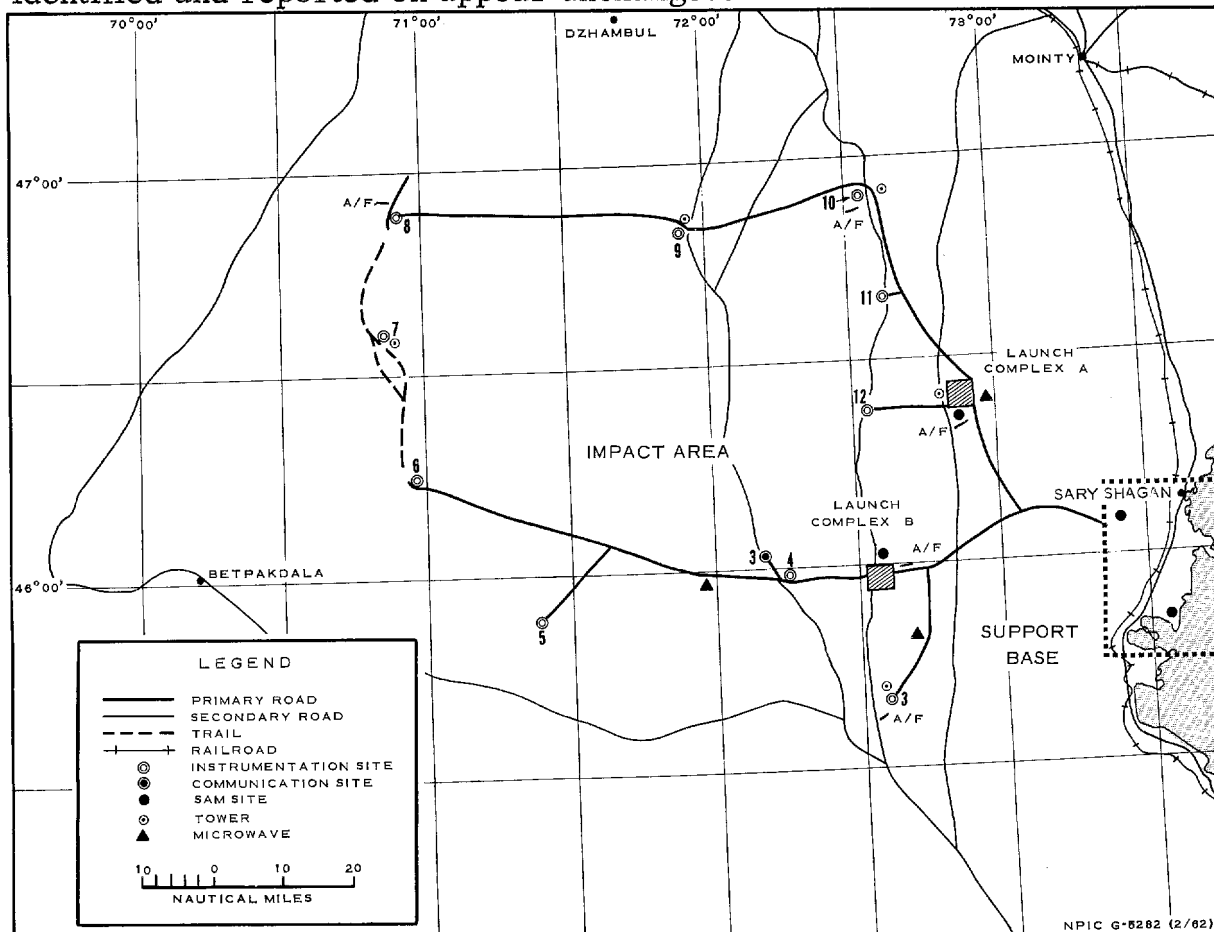


FIGURE 1. ANTIMISSILE TEST CENTER, SARY SHAGAN, USSR.

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SUPPORT BASE

The Support Base (Figure 2), covered in its entirety by cloud-free photography, appears essentially unchanged from previous coverage, and all areas appear operational. Expansion, additions, or new installations have been noted in the following areas and facilities: Main Housing Complex; Test, Fabrication, Support, and Warehouse Area; SAM Support Facility; Airfield and Dirt Strip; HEN HOUSE Antenna; and HEN ROOST Antennas.

The installation previously reported as a possible SAM site, near Instrumentation Site 2, was clearly identified. The Water-Treatment Facility, which was under construction west of the Main Housing Complex 25X1D in [REDACTED] now appears completed.

Main Housing Complex

This complex, whose principal feature is the two large housing areas, also includes numerous auxiliary areas and facilities. Pertinent details on the major components of the complex, especially concerning changes since previous coverage, follow.

Housing Facilities. Although no large-scale construction is evident 25X1D on the [REDACTED] photography, an expansion of the housing facilities 25X1D is visible (Figure 3). As of [REDACTED] 326 buildings, with a total floor space of 1,552,000 square feet, were devoted to personnel housing. On a basis of 150 square feet per person, the area could have accommodated 10,000 personnel at that time. As of [REDACTED] a total of 6,600,000 25X1D square feet of floor space was devoted to personnel housing (Table 1), and the population capacity was approximately 44,000. To support the additional personnel, more administrative, utility, and recreational facilities have been constructed.

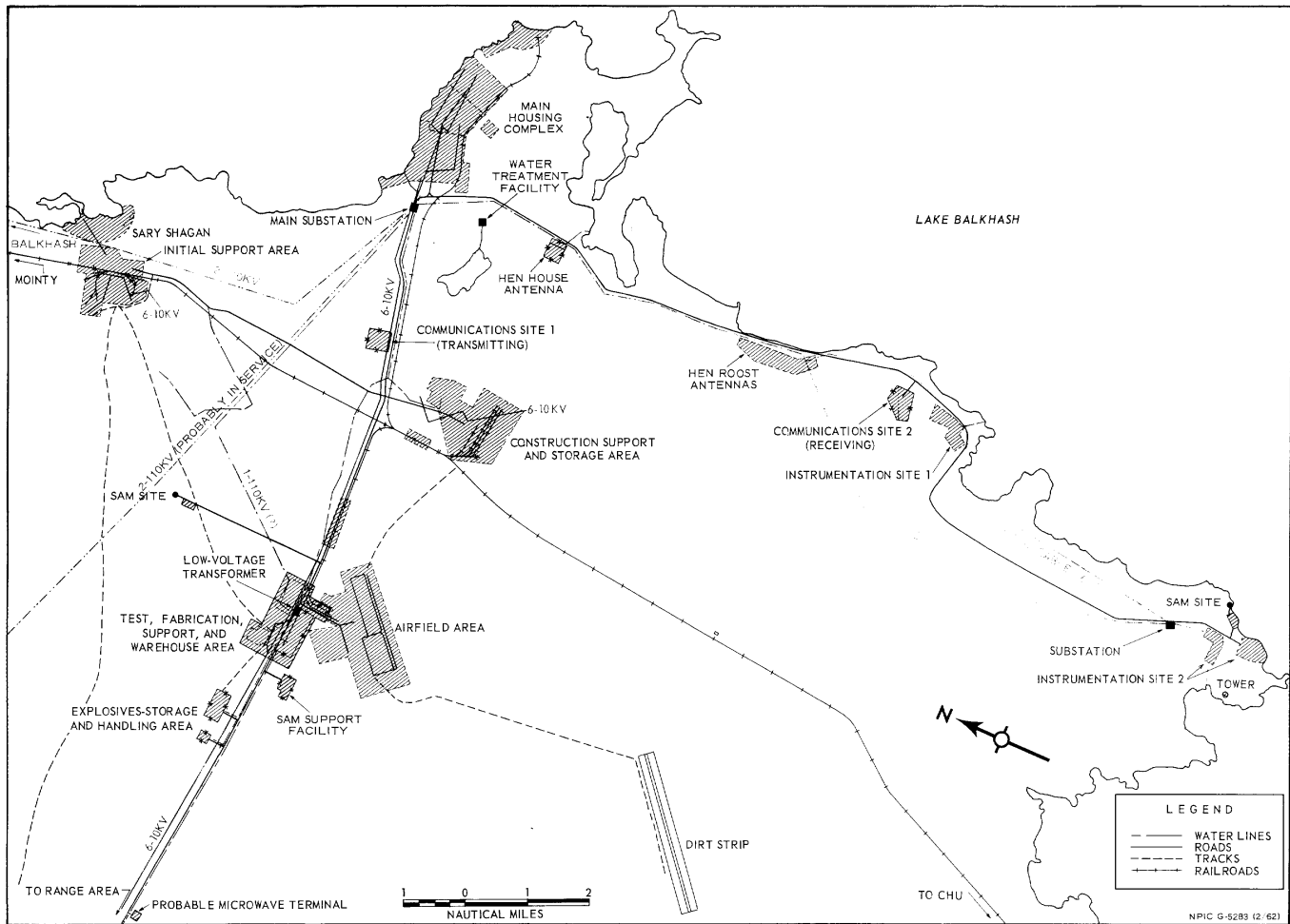


FIGURE 2. SUPPORT BASE.

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Table 1. Building Data for Original and New Housing Areas and Probable Range HQ Area

Area	No of Bldgs	L X W (ft)	Stories	Floor Space Per Bldg (sq ft)	Total Floor Space (sq ft)
Original	236	50 x 30	2	3,000	708,000
Housing	90	130 x 45	2	11,700	1,053,000
Area	15	90 x 30 65 x 30 (L-shaped)	2	9,300	139,500
					<u>1,900,500</u>
New Housing	8	230 x 60	7	96,600	772,800
Area	80	175 x 40	5	35,000	2,800,000
	78	90 x 40	4	14,400	1,125,000
					<u>4,697,800</u>
Prob Range	1	240 x 55	6	79,200	79,200
HQ Area	2	300 x 50	6	90,000	180,000
	1	200 x 50	2	20,000	20,000
					<u>279,200</u>

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In [REDACTED] the Original Housing Area was complete and appeared occupied. The population figure of 10,000 was based only on this area. East of this area the New Housing Area was under construction. Of the visible structures in the New Housing Area, 63 appeared complete and 36 were in various stages of construction. Incomplete coverage and clouds precluded further interpretation. The photography of [REDACTED] showed that many buildings in the New Housing Area for which only initial construction or walls were visible in [REDACTED] appeared complete. The quality of this photography did not permit an accurate count of structures or computation of floor space. However, six of the large multifamily dwellings and eight smaller dwellings and/or administrative buildings had been completed.

25X1D

25X1D

To accommodate further expansion, two areas (item 1, Figure 3) are available. One area between the two housing areas. If the pattern of completed buildings is used, this area could provide housing with approximately 2 million square feet of floor space. The second area, southeast of the New Housing Area and covering approximately 300 acres, may eventually be devoted to personnel housing.

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Probable Range Headquarters/Complex Control Area. This area (item 2), which was under construction in [REDACTED] just south of the New Housing Area, appeared in [REDACTED] to be completed. This is a road-served, secured area containing three large administrative-type buildings arranged to form a U, but not connected. The area also contains a quarters-type structure west of the large buildings, vehicle-parking facilities, and a 35-foot-diameter earth-covered storage tank. A probable cable scar appears to connect the area with the HEN HOUSE antenna area (formerly called Radar Site 1) and with the Test, Fabrication, Support, and Warehouse Area.

25X1D

Probable Storage Area. This area (item 3) south of the New Housing Area, is road and rail served and measures 9,100 feet on a side. It contains four probable buried storage tanks and several small support structures and appears to be connected by conduit to a possible diesel power generator building.

25X1D

Two heating plants were seen for the first time on the [REDACTED] coverage. One plant, in the northeastern part of the Warehouse Area (item 9), was under construction in [REDACTED]. The second plant (item 4), on the southeastern edge of the New Housing Area was cloud covered in [REDACTED] and the small scale precluded its identification on the [REDACTED] photography. Both plants are rail served and measure 125 by 75 feet and approximately 60 feet high, with 225-foot stacks. The plants appear to be situated to provide heat only for the adjacent housing area. The plant near the New Housing Area appears to be the only operational plant. Approximately 1,000 feet east of this heating plant is a possible diesel power generator building, 270 by 40 feet and approximately 45 feet high.

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Concrete-Fabrication Area. This area (item 5), covering approximately 110 acres and road and rail served, is at the eastern end of the Main Housing Complex. It contains facilities for casting concrete building components and includes a probable water-pumping station, vehicle-parking facilities, and open storage. The area was also observed in [REDACTED]

25X1D

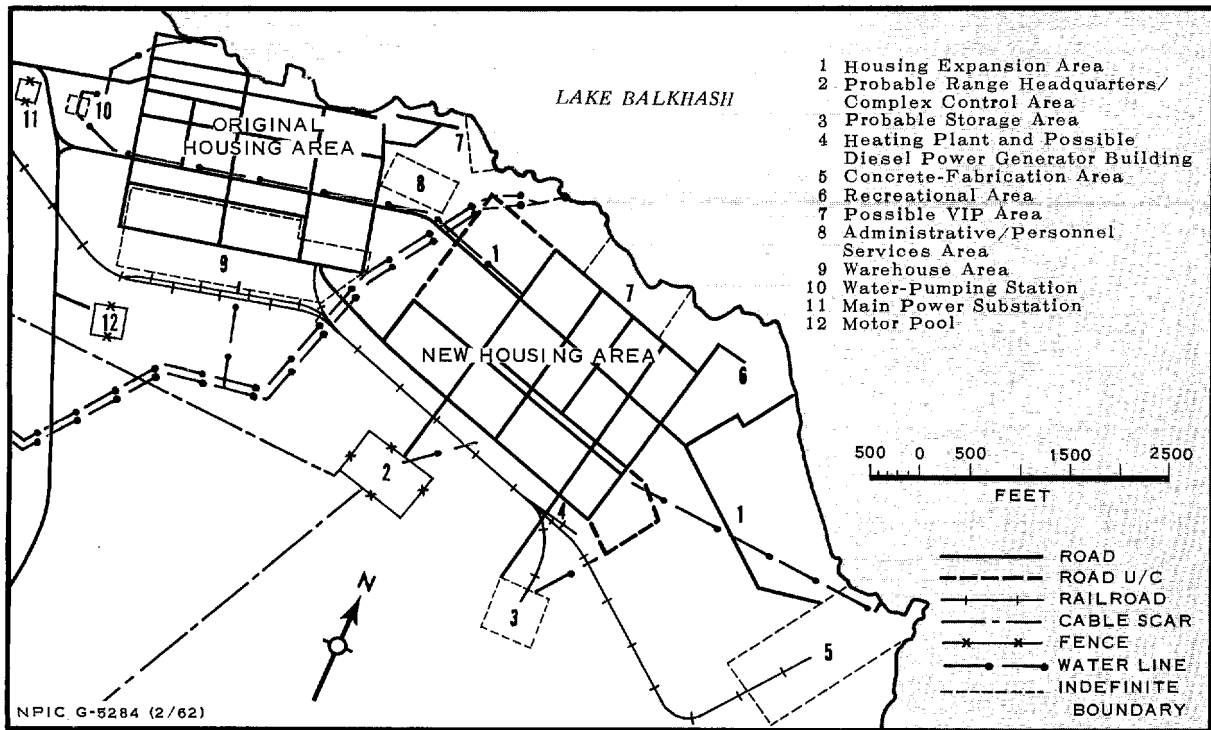
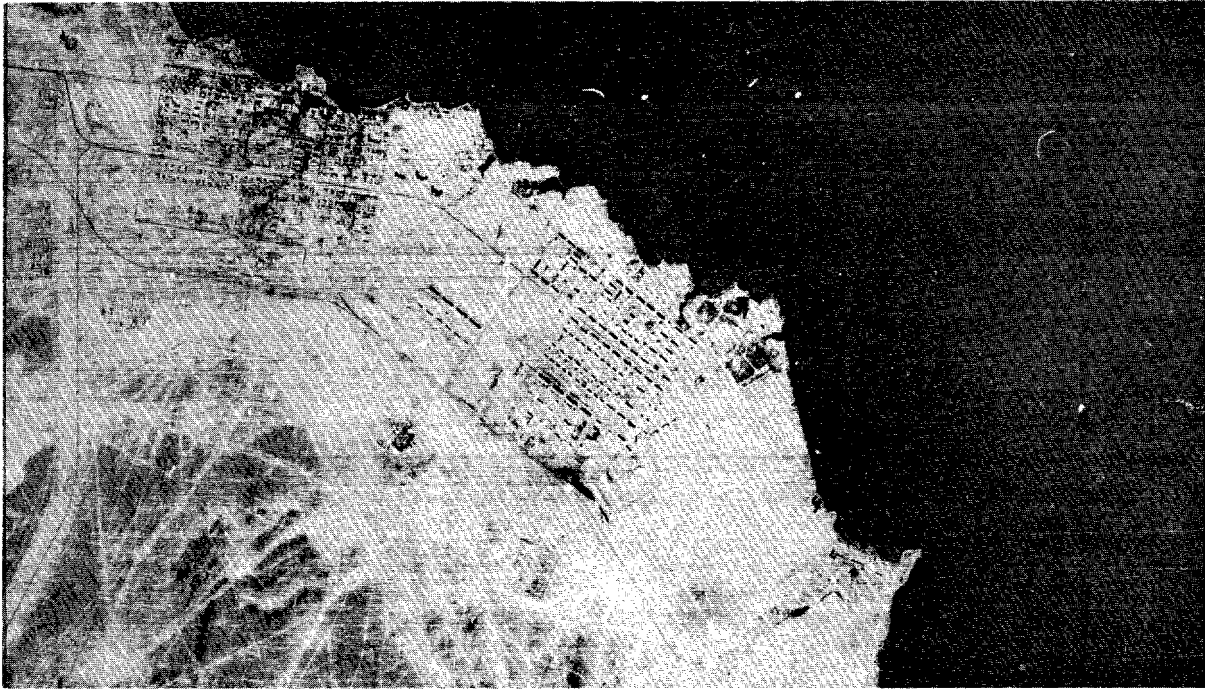


FIGURE 3. FACILITIES IN MAIN HOUSING COMPLEX.

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Administrative/Personnel Services Area. This area (item 8) contains three main buildings, two of which appear complete externally. Seven other structures of varying sizes are north of the main buildings. In [REDACTED] 25X1D [REDACTED] one of the main buildings and a large support building were under construction. The other buildings had not been started.

Warehouse Area. This area (item 9) has been completed since [REDACTED] 25X1D [REDACTED] It is rail and road served and contains 15 semiburied storage buildings, 2 large warehouses (one of which is new since [REDACTED] 2 25X1D smaller storage buildings, approximately 10 support-type buildings of various sizes, and a motor pool. The railroad within this area has been 25X1D extended since [REDACTED] to the Concrete-Fabrication Area. There are multiple spurs at the Warehouse Area and just south of the New Housing Area.

Water-Treatment Facility. This facility, approximately one nm south of the power substation, was under construction in [REDACTED] Now 25X1D completed, the facility consists of two parallel buildings approximately 200 by 70 feet and several small support buildings, road served, and is connected to Lake Balkhash and the Warehouse Area by two parallel buried conduits. The buried conduits were present in [REDACTED] A possible 25X1D conduit also can be traced to the HEN HOUSE antenna area. Just west of the Water-Treatment Facility is a large lake (present in [REDACTED] 25X1D which appears to be related to the facility.

Test, Fabrication, Support, and Warehouse Area

Within the Fabrication Facility, the two large buildings (185 by 140 feet and 125 by 125 feet) which were under construction in [REDACTED] now 25X1D appear completed (Figure 4). A new building has been erected across the access road from the 125- by 125-foot building. In the Warehouse Facility, another warehouse has been constructed and appears to be completed.

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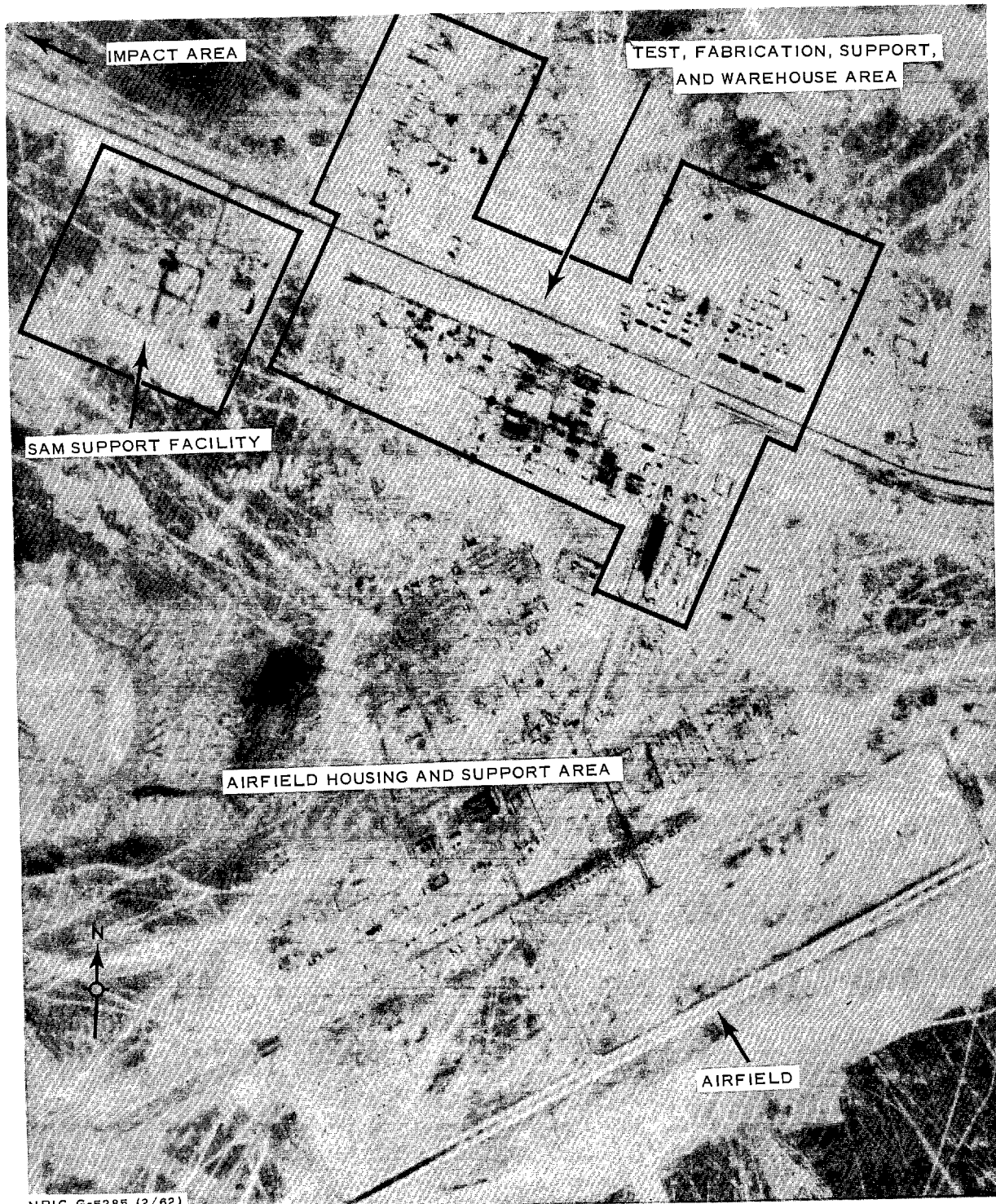


FIGURE 4. AIRFIELD AND NEARBY FACILITIES (photography of [REDACTED] 25X1D)

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SAM Support Facility

This facility, road served and secured, is 1.6 nm northwest of the center of the airfield and just south of the road leading to the Range Area (Figure 2). At the time of the [REDACTED] coverage, a portion of the present road pattern and footings for the checkout building and for four of the smaller storage buildings were under construction. The connecting roadway and fencing had not been constructed. On the [REDACTED] photography, only four structures and a portion of the road pattern were visible. Snow cover and the small scale precluded assigning a definite function to the area at that time. The [REDACTED] photography is clear enough for the area to be identified as a SAM support facility (Figure 4). The facility appears completed.

Airfield and Nearby Facilities

The facilities in the housing and support area for the airfield appear completed (Figure 4). Additions to the airfield include a 2,600-foot extension to the west end of the taxiway/parking apron; two 400- by 160-foot aprons north of the runway on each of the end connecting taxiways; an unprepared area used for aircraft parking at the southwest end and north of the runway (between the runway and taxiway/parking apron); a circular, 2,000-foot-diameter, cleared area (seen on the [REDACTED] photography) 3,000 feet south of the runway. No definite purpose can be ascribed to this area. By [REDACTED], another cleared area, 2,000 by 1,200 feet, had been added to the southwest quarter of the circular area. (These cleared areas are not shown on Figure 4.)

The 16,300-foot dirt strip appears unchanged. Two possible marker beacons/instrumentation sites, aligned with and southwest of the dirt strip, have been constructed or are under construction; one is 3,000 and the other 10,000 feet from the dirt strip.

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HEN HOUSE Antenna

The area of the HEN HOUSE Antenna (previously called Radar Site 1 1/) shows some changes and additions since [REDACTED] (Heavy snow cover on the photography of [REDACTED] precluded observation of any changes.)

The installation was not yet completed in [REDACTED] as evidenced by numerous crates in front of the antenna structure and the early construction stage of support facilities. On the [REDACTED] photography, an unidentified object casting a heavy shadow was visible at the middle of the antenna face. By [REDACTED], the support facilities had been completed, and the crates and the unidentified object had been removed.

The HEN HOUSE installation (Figure 5) now consists principally of an antenna structure, an adjoining control building, [REDACTED]

[REDACTED]

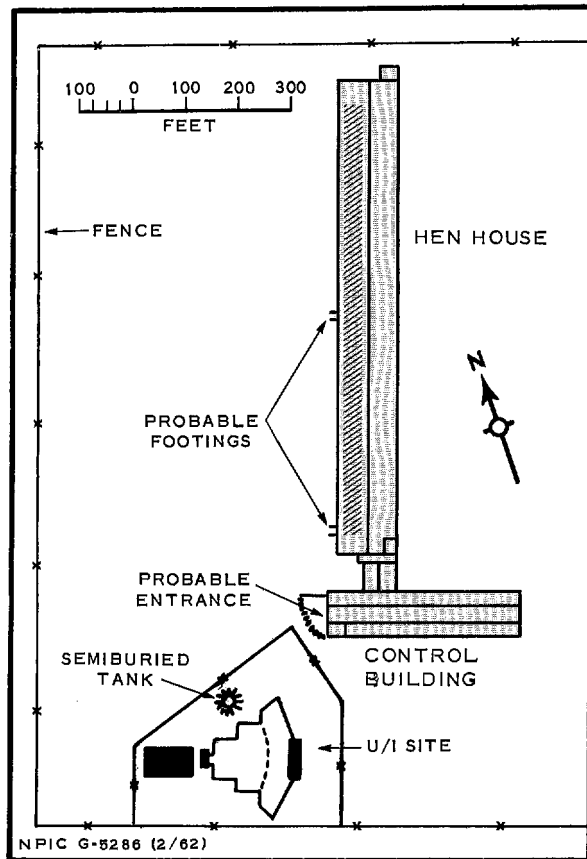


FIGURE 5. HEN HOUSE ANTENNA. Changes since [REDACTED] shown in red.

Also present are 17 major support structures (not shown on the figure). A water intake line and an effluent line run directly between the area and Lake Balkhash. A possible water line, present in [REDACTED] but not identified from that photography, extends from the Water-Treatment Facility near the Main Housing Complex to storage tanks in the HEN HOUSE area. The

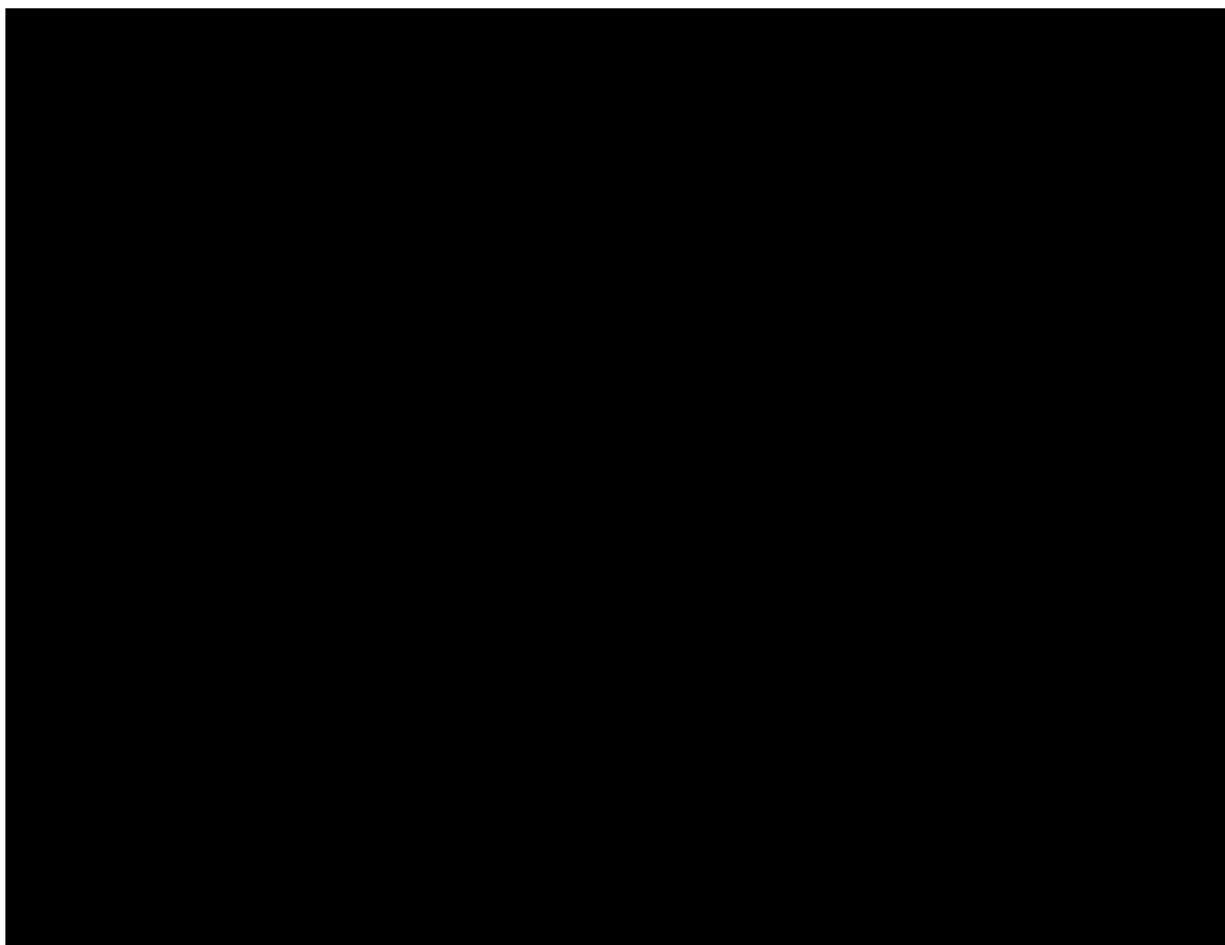
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use of two different water sources may be related to quality and/or utilization requirements. A cable line leads from the recently completed Probable Range Headquarters Area to the HEN HOUSE control building.

Probable footings for the now-removed unidentified object at the middle of the antenna face are visible on the [REDACTED] photography. 25X1D
Similar footings are adjacent to the south end of the antenna face.

25X1D In [REDACTED] earth was being removed by a bulldozer from the area in front of the control building. This area is now probably a below grade vehicular or pedestrian entrance.

25X1D



HEN ROOST Antennas

The two HEN ROOST antenna installations (which make up what was previously called Radar Site 2 1/) were covered by excellent 25X1D quality photography in [REDACTED] 25X1D [REDACTED] (Figure 6).

HEN ROOST NORTH appears 25X1D the same as in [REDACTED] HEN ROOST SOUTH, however, previously thought to be similar in design to the northern installation, appears 25X1D on the better quality [REDACTED] photography to be different in design from HEN ROOST NORTH. Because of their partially similar and partially different characteristics, the two antennas appear to be separate units of one antenna system.

Table 2 gives comparative data on the two installations.

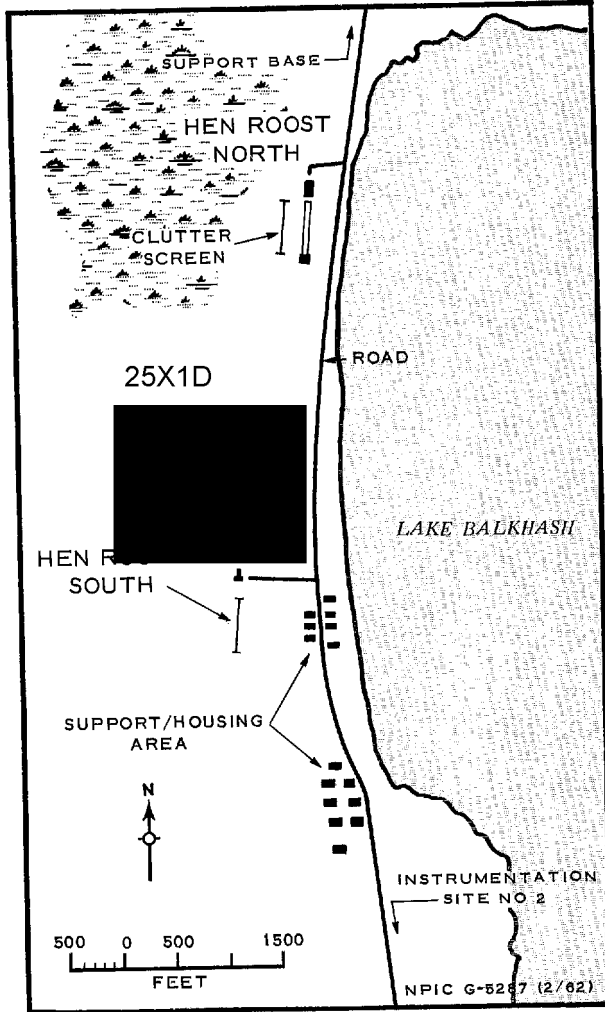


FIGURE 6. HEN ROOST ANTENNAS.

Table 2. Data on HEN ROOST Antennas

Item	HEN ROOST NORTH	HEN ROOST SOUTH
Reflector	510 by 65 ft	510 by 65 ft
Feed	Massive	None visible
Clutter screen	620 ft long	None visible
Control bldg	Rectangular, 20,000 sq ft of floor space	T-shaped, 30,000 sq ft of floor space
Support bldgs	6 minor	2 housing/support areas with total floor space of 162,000 sq ft (one area, 7 buildings, 24,000 sq ft; other area, 7 buildings, 138,000 sq ft)
Housing area	None	
Orientation	[REDACTED]	25X1D

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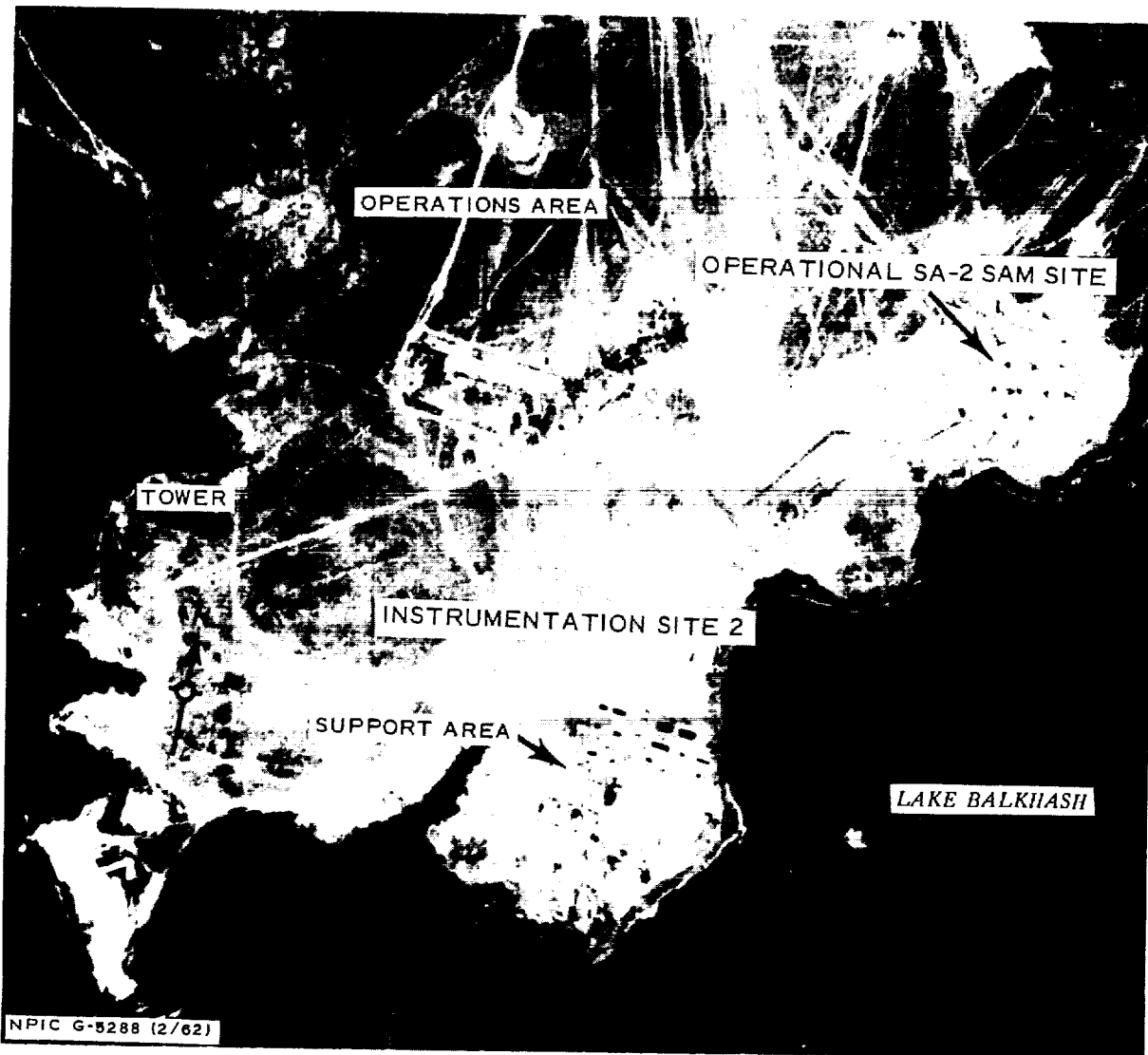


FIGURE 7. INSTRUMENTATION SITE 2 AND SA-2 SAM SITE (photography of

25X1D

Instrumentation Site 2 and SA-2 SAM Site

25X1D

Instrumentation Site 2 appears the same as in [REDACTED]. The
25X1D possible SAM site observed in [REDACTED] near this instrumentation
25X1D [REDACTED] site, on the shore of Lake Balkhash, has been definitely identified on the
25X1D [REDACTED] coverage as an operational SA-2 SAM site (Figure 7).

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LAUNCH COMPLEX A

Note: The analysis of this complex by the NPIC PI team resulted in two different interpretations, one by the Army, Navy, and Air Force PI analysts, and the second by the CIA PI analysts.

Majority PI Interpretation

25X1D Launch Complex A was covered by fair-quality photography in [REDACTED] No significant changes were noted in the Headquarters and Administration Area, the Electronics Area, the Probable Missile Support Area, the Possible Central Control Area, the Possible Operational Support Area, [REDACTED] 25X1D

25X1D The Surface-to-Air Missile (SAM) Launch Area initially identified on the coverage of [REDACTED] contained two launch sites (Launch Sites 1 and 2, Figure 8). Expansion of this area was observed on the [REDACTED] 25X1D [REDACTED] coverage. 2/ The [REDACTED] 25X1D photography shows that the 25X1D expansion noted in [REDACTED] 25X1D consists of two additional launch sites (Sites 3 and 4) similar to Sites 1 and 2, [REDACTED] 25X1D

25X1D

[REDACTED]

The launch sites differ from hexadic SA-2 sites in dimensions (Table 3), but were originally reported as of the SA-2 type owing to site layout, namely, six launch points arranged in a fan-shaped pattern around a centrally located control area.

The available photography precludes giving positive details about launcher positions or central control positions, that is, whether these positions are revetments or pads. The exact alignment of the service roads to the launch positions is difficult to determine. Also, it cannot be determined positively that each site contains six launch positions; however, either five or six launch positions are at each site.

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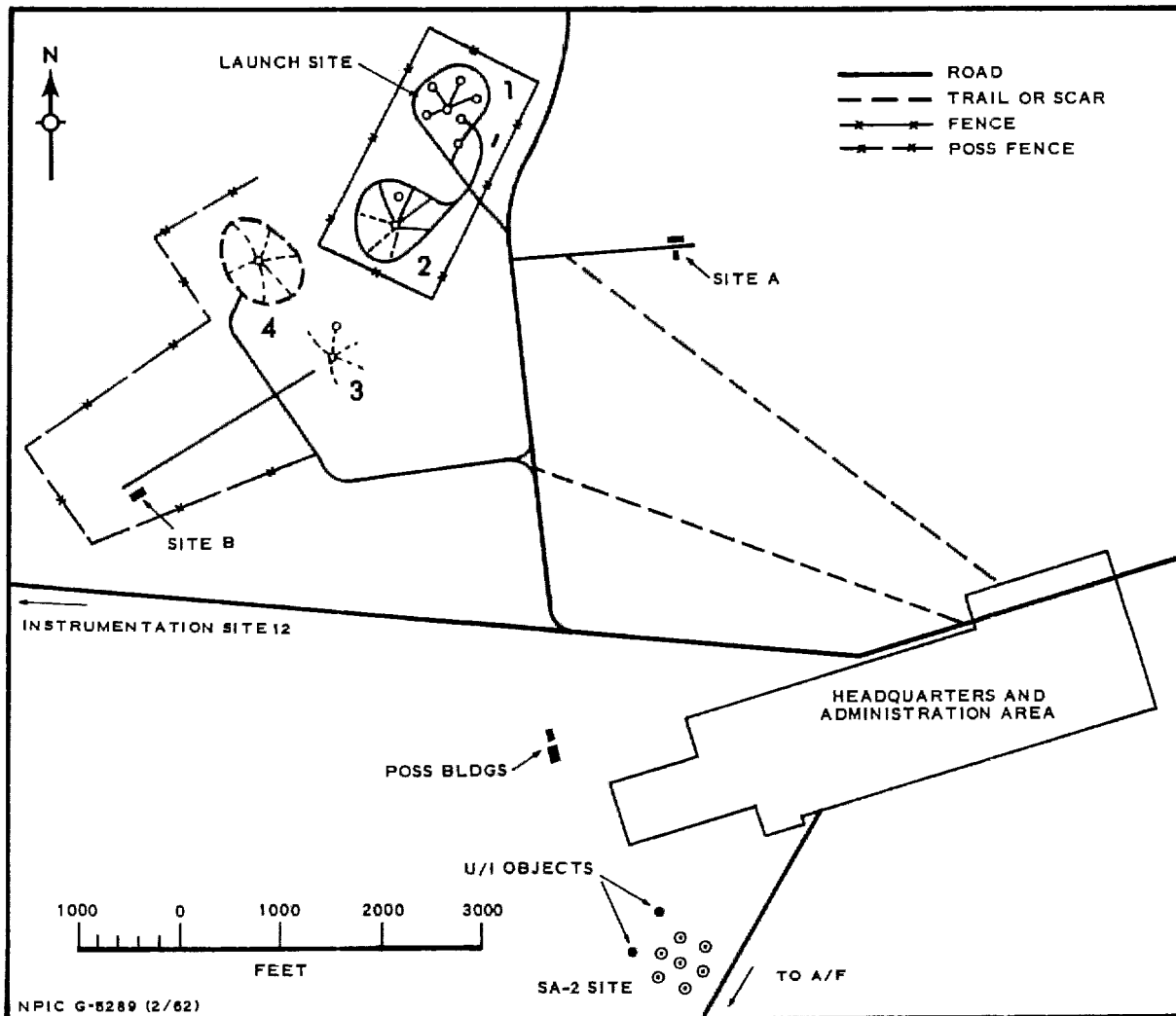


FIGURE 8. SAM LAUNCH AREA, LAUNCH COMPLEX A. (Majority interpretation.)

Table 3. Comparison of SA-2 SAM Sites With SAM Sites in Complex A

Item	SA-2 SAM SITES	SAM SITES IN COMPLEX A
Ring road	750 ft diam (varies)	900-1,000 ft (varies)
Launcher area	60 ft diam (min)	90-100 ft diam
Distance from launcher to control area	250 ft (max)	315 ft (approx)

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25X1D Although the launch sites of Launch Complex A differ from SA-2 sites, they are positive evidence of a SAM system of some type -- probably an antimissile-missile (AMM) system. The four launch sites appear to be arranged in two pairs, each site within a pair being 1,200 feet apart, center to center. The pairing is evidenced by the difference in construction time of each pair and by the fact that Sites 1 and 2 were built in early [redacted] and enclosed by a security fence. Possible fencing is also evident around part of Sites 3 and 4 and Site B.

Although SAM sites have not been observed elsewhere in a grouping or alignment similar to that of the four at Launch Complex A, they have been observed in pairs at the Kapustin Yar/Vladimirovka Missile Test Center (in the SA-2 Troop Training Launch Area and the Probable SA-3 SAM Launch Area) 3/, as well as at the SAM Launch Complex of the Shuang-ch'eng-tzu Missile Center in China (seen on [redacted] KEYHOLE photography).
25X1D

Site A and Site B are approximately 2,400 feet from Launch Sites 1 and 2, and 3 and 4, respectively. The two sites are similar in appearance in that both are road served, include one or two buildings, and are similarly positioned geometrically with respect to the pair of launch sites each is associated with (Figure 9). The functions of Sites A and B appear to be direct support of the launch sites. The geometric pattern formed suggests that they are instrumentation facilities such as missile tracking radars or possibly guidance facilities though no other details of an instrumentation or guidance nature are discernible on

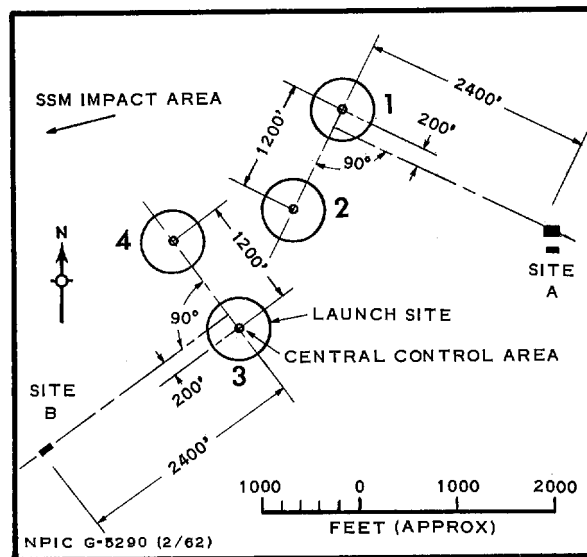


FIGURE 9. GEOMETRICAL LAYOUT OF SAM LAUNCH AREA. (Majority interpretation.)

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the photography. [REDACTED]

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The chronological development of the various sites comprising the SAM Launch Area of Launch Complex A, as evidenced on TALENT and KEYHOLE photography, is presented in Table 4.

Table 4. Chronological Development of SAM Launch Area

Item	[REDACTED]	[REDACTED]	[REDACTED]
Launch Sites 1 & 2	Complete or nearly complete	Complete	Complete
Launch Sites 3 & 4	No evidence	Under construction	Complete or nearly complete
Site A	No evidence	Complete or nearly complete	Complete
Site B	No evidence	Under construction	Complete or nearly complete

25X1D

CIA PI Interpretation

CIA PI analysts believe that in the majority interpretation, above, the description of and function ascribed to certain facilities in Launch Complex A are incongruent with the features observed on the photography. Specific items include the following:

1. Total number of launch sites and their construction status.
2. Construction status and function of Sites A and B.
3. Chronological development of the SAM Launch Area.
4. Importance of "pairing" of sites.
5. Function of the "system."

CIA PI analysts believe that five launch sites are located in the southwestern section of Launch Complex A (Figure 10). Sites 1, 2, 3, and 4 are definite sites; site 5 is labeled "possible" because of its early

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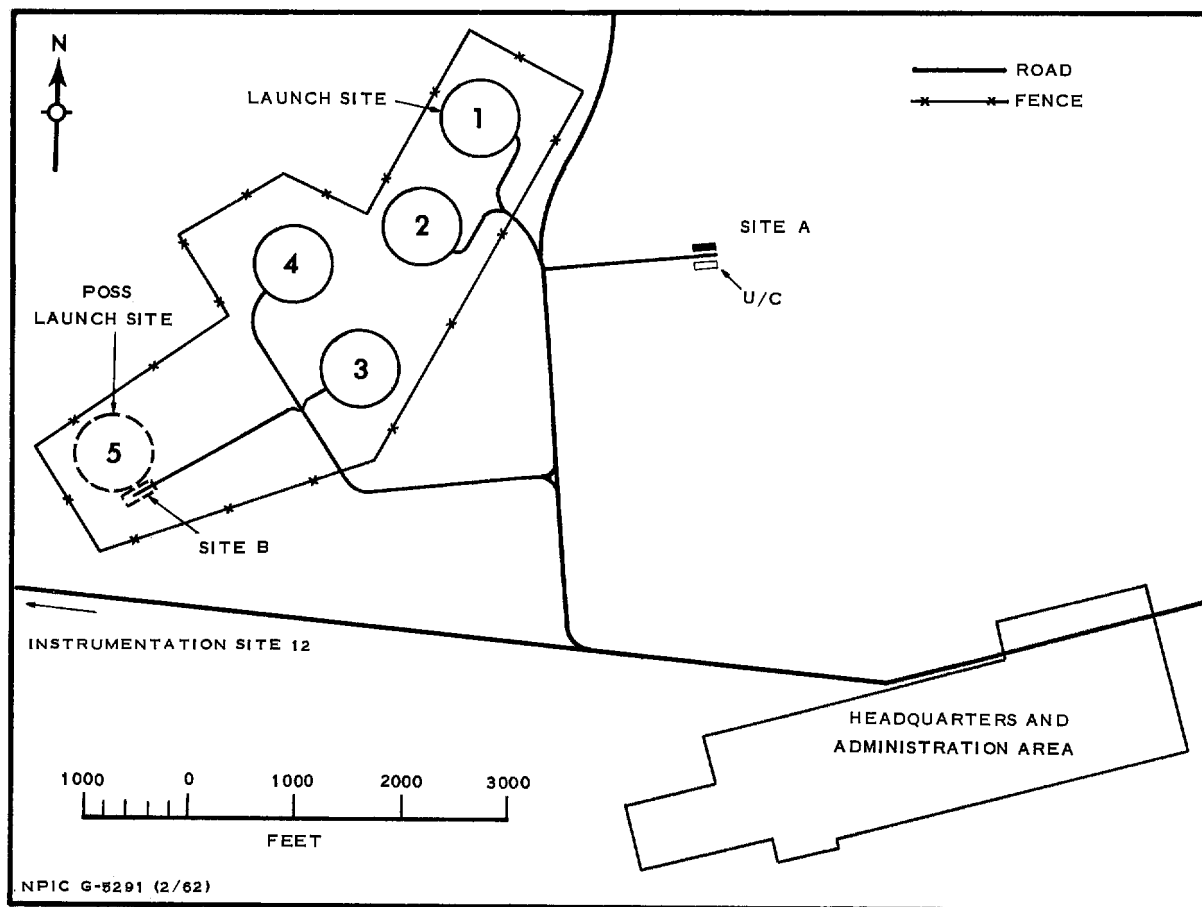


FIGURE 10. SAM LAUNCH AREA, LAUNCH COMPLEX A. (CIA PI interpretation.)

construction stage. The positioning of the road within the fence (in the western section of the area), along with the shape and extent of the construction activity north of the road, support the contention that a launch site (Site 5) is being built.

Site A consists of a long, low, flat-roofed structure parallel to and north of its service road and a similar structure under early construction south of the road. The location of Site A, along with its composition, suggests its use for missile storage and is somewhat inappropriate for a missile track radar or guidance function.

Site B (described as similar to Site A in the majority interpretation, above) has unidentified activity near the terminus of its service road. This

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activity did not, at the time of the photography, resemble a building or buildings under construction. It could be something as ordinary as a parking area for vehicles used for constructing Launch Site 5.

The chronological development of the launch area, as seen by CIA PI analysts, is given in Table 5.

Table 5. Chronological Development of SAM Launch Area

Area	[REDACTED]	[REDACTED]	[REDACTED]	25X1D
Launch Site 1	Under construction	Possibly complete	Complete	
Launch Site 2	Under construction	Possibly complete	Complete	
Launch Site 3	No evidence	Under construction	Possibly complete	
Launch Site 4	No evidence	Under construction	Under construction	
Poss Launch Site 5	No evidence	Possibly under construction	Under construction	
Site A	No evidence	Under construction	Under construction	

The construction chronology of the area follows the traditional Soviet development pattern for a missile system. Launch Sites 1 and 2 were first built (without supporting facilities) to match missile hardware to launch-facility design (or vice versa) and to determine the needs for ground support equipment. The later construction of other launch sites and of Site A appears to indicate the development of a prototype operational system. A large acquisition radar would be required for this system, but none has been specifically identified or reported to be associated with this system.

The "pairing" of the sites, as described in the majority interpretation, has no importance beyond showing the R&D phase of Launch Sites 1 and 2. The comparison of these sites to Kapustin Yar sites is excellent, but no pairing can be noted at the missile center in China. The two SAM launch sites at the Chinese missile center are over a mile apart.

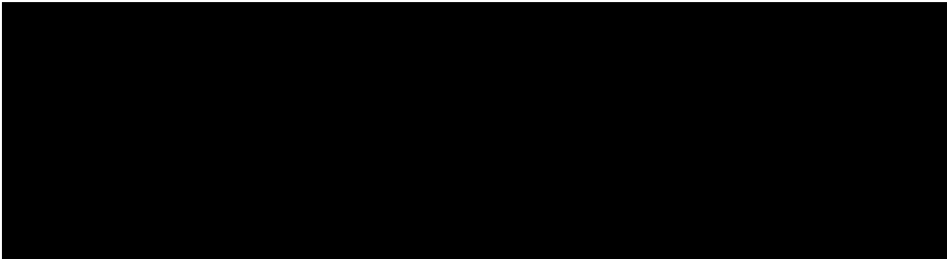
The "system," as described in the majority interpretation, is a probable AMM system. CIA PI analysts, while agreeing that the location of

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a prototype operational SAM system within an antimissile center could suggest that the system has an antimissile capability, believe that the photography alone does not indicate such a strong suggestion as a probable AMM system.

REFERENCES

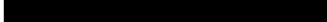


PHOTOGRAPHY

	<u>Mission</u>	<u>Date</u>	<u>Camera/Pass</u>	<u>Frames</u>	<u>Classification</u>
25X1D					TSR TSR TSC

MAPS OR CHARTS

ACIC. WAC 245, 4th ed, Dec 56, scale 1:1,000,000 (U)

DOCUMENTS

- 25X1C
1. CIA. PIC/JR-1010/61, Antimissile Complex, Sary Shagan, USSR, Apr 61 (S/Noform Except  -- Downgrading Prohibited)
 2. CIA. PIC/JR-3/61, Antimissile Test Complex, Sary Shagan, USSR, Changes Since  Apr 61 (TSCR) 25X1D
 3. CIA. PIC/JR-1008/61, Surface-to-Air Missile Facilities, Kapustin Yar/Vladimirovka Missile Test Center, USSR, Mar 61 (S/Noform  -- Downgrading Prohibited) 25X1C

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