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25X1

BASIC IMAGERY
INTERPRETATION
REPORT

NATIONAL PHOTOGRAPHIC
INTERPRETATION CENTER

MOSCOW ABM FACILITIES

DEPLOYED AMM FACILITIES, USSR
USSR
DECEMBER 1972

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RCA-02/0002/73

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11 PAGES

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INSTALLATION OR ACTIVITY NAME					COUNTRY
Moscow ABM Facilities					**UR**
UTM COORDINATES	GEOGRAPHIC COORDINATES	CATEGORY	BE NO.	COMIREX NO.	NIETB NO.
NA	**See below**	**Seebelow**	**See below**	**See below**	**See below**

MAP REFERENCE

See below

LATEST IMAGERY USED	NEGATION DATE (If required)
	NA

Installation Name	Coordinates	Category	BE No	COMIREX No	NIETB No	USATC 200 Sheet No
Moskva ABM Launch Complex E03	56-23-43N 038-11-19E					M0154-23HL
Moskva ABM Launch Complex E05	56-14-26N 038-34-09E					M0154-23HL
Moskva ABM Launch Complex E15	55-09-00N 038-22-00E					M0167-10HL
Moskva ABM Launch Complex E21	55-04-00N 037-02-00E					M0167-9HL
Moskva ABM Launch Complex E24	55-21-10N 036-29-24E					M0167-4HL
Moskva ABM Launch Complex E31	56-08-05N 036-29-37E					M0167-22HL
Moskva ABM Launch Complex E33	56-20-10N 036-48-07E					M0154-22HL
Naro-Fominsk ABM/ Space Trkng Rdr Fac A	55-29-41N 036-40-49E					M0567-4HL
Naro-Fominsk ABM/ Space Trkng Rdr Fac B	55-28-52N 036-38-53E					M0167-4HL
Chekhov ABM/Space Radar Site A	55-14-50N 037-17-00E					M0167-5HL
Chekhov ABM/Space Radar Site B	55-12-50N 037-18-10E					M0167-5HL
Moskva ABM Support Facility Borovsk	55-18-00N 036-33-05E					M0167-4HL
Moskva ABM Training Site D25-1	55-33-05N 036-41-10E					M0167-4HL

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ABSTRACT

1. Significant developments at the Moscow ABM Facilities during the reporting period [redacted] included the following: 25X1

a. The assembly of two 25-meter-(82-foot-) diameter dish antennas at complex E21.

b. The construction of a trench between Chekhov ABM/Space Radar Site B [redacted] and complex E21. 25X1

c. The identification of 70 GALOSH missile canisters, the largest number ever observed at the Moscow ABM facilities. Forty-one of these canisters were at the four operational launch complexes, the largest number ever observed there.

d. Continued construction at launch complex E15 and at Chekhov ABM/Space Sites A and B.

2. This report contains a location map showing the status of the ABM facilities, a table listing GALOSH missile canisters seen at the Moscow facilities, an artist's concept of the feed mechanism on the dish antennas at complex E21, and five annotated photographs. It updates NPIC report [redacted] RCA-02/0005/72. 25X1

INTRODUCTION

3. The Moscow ABM system consists of three complexes with renewed construction, four operational complexes, two large ABM/space tracking radar facilities (one of which is under construction), a support facility, and a training site (Figure 1).

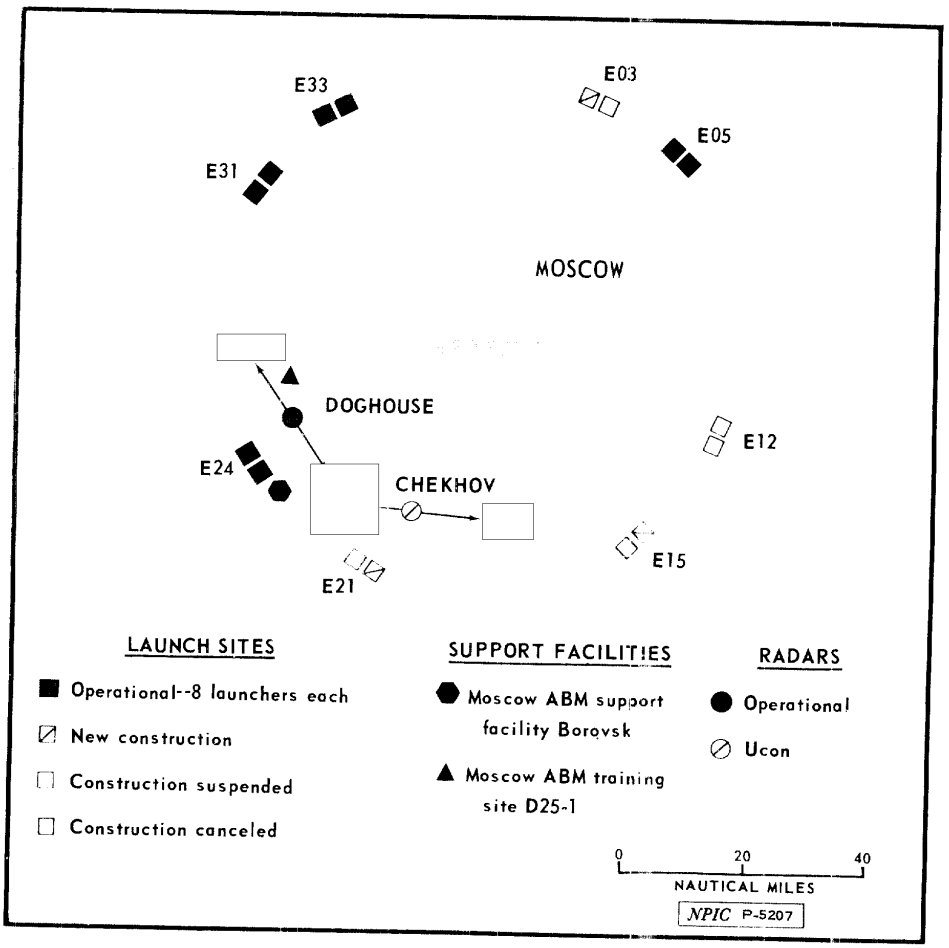

FIGURE 1. LOCATION MAP, MOSCOW ABM FACILITIES

4. Construction of the Moscow ABM system has been characterized by sporadic starts and stops. A brief history of the system as observed on KEYHOLE photography since 1962 is given in the previous NPIC report on the facilities.[1]

5. Photography of [redacted] provided complete coverage of all ABM facilities. 25X1

BASIC DESCRIPTION

Moscow ABM Complex E21

6. Construction at complex E21 has continued at a rapid pace. By [redacted] 25X1 25-meter (82-foot) diameter dish antennas were completely assembled on the concrete aprons adjacent to antenna buildings 1 and 4. A third dish antenna was partially assembled on a concrete apron adjacent to antenna building 2. On [redacted] at antenna building 3 25X1 a dish antenna template was on a concrete apron (Figure 2).

7. The feed mechanism on the two completed antennas has been identified as a Cassegrain type (Figure 3). However, a [redacted] diameter dish antenna was 25X1 mounted atop the large tripod feed mechanism (inset, Figure 3). This type of feed mechanism with a smaller top-mounted dish has also been observed at one of the Molniya receiving terminals. Another NPIC report provides further details of this antenna and other parabolic antennas in the USSR.[2]

8. Although the antenna mounts have not been installed on the antenna pedestals at E21, the size and shape of the pedestals indicate that azimuth-elevation (az-el) steering mechanisms will probably be used. All other 25-meter (82-foot) dish antennas identified in the USSR have az-el mounts.

9. Construction resumed on a T-shaped structure west of TRY ADD building A between April 1972 and [redacted] The T-bar portion of the structure is [redacted] 25X1 feet) across and [redacted] wide. The "stem" portion is [redacted] long 25X1 and [redacted] wide. This structure is similar in size and shape to the T-shaped 25X1 structures at the operational ABM facilities and at six SA-1 sites around Moscow.

10. On [redacted] a waste catch basin was observed under construction 25X1 approximately 485 meters (1,590 feet) east of antenna building 3. The catch basin is 168 meters (553 feet) long and 81 meters (266 feet) wide and is equally divided into four catch ponds. The type of waste to be transferred to the basin is not known at this time.

11. Six pyramid-shaped mounds were constructed in and around the TRY ADD area during the reporting period. The purpose of these mounds is not yet known.

12. A heating plant and two fuel storage tanks remained under construction at the on-site support area immediately east of the existing heating plant. The new larger heating plant will probably be oil fired and will replace the smaller coal-fired heating plant.

13. Since April 1972, when the pace of construction was accelerated, numerous buildings have been constructed at the ABM/SA-1 housing and support area. They include apartment-type buildings, barracks, and support-type buildings. Still others are under construction (Figure 4).

14. On photography of July-August 1972 a trench was observed in various stages of construction between complex E21 and Chekhov ABM/Space Tracking Radar Facility B. This trench was not present in January 1972. On [redacted] the trench appeared to 25X1 end approximately 60 meters (200 feet) southwest of the power substation under construction at Chekhov radar site B. At complex E21 the trench had been extended to a point just outside the security fence at the eastern edge of the complex (Figure 2). The trench will probably be utilized for either communications or power.

15. Another trench, probably also for communications or power, extends from a point near the northeastern corner of the power substation at Chekhov radar facility B and connects with the Venyukovskiy Bunkered Unidentified Facility [redacted] 25X1 approximately 5 nm southeast. This trench has been under construction since January 1972.

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Moscow ABM Complex E15

16. Construction continued at complex E15 but at a slower pace than at complex E21. The function of the large excavation southwest of the TRY ADD area is still not known. However, a significant increase in the amount of construction materials was observed during the reporting period and on [redacted] large steel reinforcement sections covered approximately 40 percent of the floor of the excavation (Figure 5). 25X1

17. On [redacted] a ring base [redacted] in diameter was under construction on the roof of the antenna building immediately east of TRY ADD building A. Similar but larger ring bases have been constructed on the antenna buildings at complex E21. There was still no evidence of antenna mounts or antenna components at complex E15. A small structure [redacted] has been constructed atop the old pedestal at TRY ADD building A and is aligned diagonally to the sides of the old pedestal. A building at the eastern edge of the TRY ADD area previously thought to be for support has been identified as a probable power substation under construction. Another power substation was under construction in the support area. 25X1 25X1

18. Numerous trenches were dug throughout the TRY ADD area during the reporting period. Rectangular concrete conduit sections were placed in the trench that connects TRY ADD building A with the probable antenna buildings immediately to the east and west. A building was under construction immediately north of TRY ADD building C.

Moscow ABM Complex E03

19. Minor construction activity was observed at this complex during the reporting period. On [redacted] a probable building foundation was under construction immediately north of TRY ADD building A. On the same date an arch-roofed building was under construction adjacent to the northeastern corner of the SA-1 site (Figure 6). On [redacted] numerous pieces of unidentified construction material were adjacent to the missile checkout building just north of TRY ADD building A. 25X1 25X1

Operational ABM Complexes E05, E24, E31, and E33

20. A new building was under construction in the on-site support area at each of the four operational complexes. Each building was [redacted] wide. Their function has not been determined. 25X1 25X1

21. On [redacted] 41 canisters were observed at the operational launch complexes. This is the largest number observed here to date. Table 1 shows the canister counts at the four operational complexes and at Borovsk ABM Support Facility during the reporting period. 25X1

Chekhov ABM/Space Radar Sites A and B

22. At Chekhov two separate but apparently identical ABM radars were under construction. Construction on the first radar (I) began in 1967. It consists of a receiving antenna at radar site A and a transmitting antenna at radar site B. Each antenna has a boresight azimuth of [redacted] A second layer of paneling was installed on ABM radar I during the reporting period. In September 1972 a third layer was being applied to the face of the receiver antenna. The paneling which will be applied to the face of the transmitter antenna was lying on the ground in front of it. There was no significant change in the tulip-shaped antenna at the northern end of receiving antenna I. 25X1

23. Construction on the second Chekhov ABM radar (II) began in August 1970. The receiving antenna at radar site A and the transmitting antenna at radar site B have boresight azimuths of [redacted] During the reporting period the superstructure for the transmitting antenna was erected and the superstructure for the receiving antenna was partially erected. The control buildings were in a late stage of construction. Further details on the ABM radar at Chekhov are provided in another NPIC report.[3] 25X1

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Table 1. Galosh Missile Canisters Observed at Moscow ABM Facilities

FACILITY	DATE	NUMBER OF CANISTERS	LOCATION (NUMBERS & LETTERS DESIGNATE LAUNCH POSITIONS)
E05		12	1B1, 1B2, 1B4, 1C1, 1C2, 1C4, 2B1, 2B2, 2B4, 2C1, 2C2, 2C4,
		9	1B1, 1B2, 1B4, 1C1, 1C4, 2B1, 2B4, 2C1, 2C4
		9	1B1, 1B2, 1B4, 1C1, 1C4, 2B1, 2B4, 2C1, 2C4
		9	1B1, 1B2, 1B4, 1C1, 1C4, 2B1, 2B4, 2C1, 2C4
		10	1B1, 1B2, 1B4, 1C1, 1C4, 2B1, 2B4, 2C1, 2C3, 2C4
		9	1B2, 1B3, 1B4, 1C1, 1C4, 2B1, 2B4, 2C1, 2C4
		4	1B3, 1B4, 1C1, 1C4
		9	1B1, 1B2, 1B3, 1C1, 1C4, 2B1, 2B4, 2C1, 2C4
		9	1B1, 1B2, 1B3, 1B4, 1C1, 2B1, 2B4, 2C1, 2C4
		9	1B1, 1B2, 1B3, 1B4, 1C4, 2B1, 2B4, 2C1, 2C4
E24		8	1B1, 1B3, 1C1, 1C2, 1C3, 1C4, 2B2, 2C3
		6	1B1, 1B4, 2B2, 2B3, 2C2, 2C3
		10	1B1, 1B2, 1B4, 1C3, 1C4, 2B2, 2B3, 2B4, 2C2, 2C3
		9	1B1, 1B2, 1B4, 1C3, 1C4, 2B2, 2B4, 2C2, 2C3
		11	1B1, 1B2, 1C1, 1C3, 1C4, 2B2, 2B3, 2C2, 2C3, 2C4, & one on road
		8	1B4, 1C1, 1C3, 1C4, 2B2, 2B3, 2C2, 2C3
		1 (prob)	one on loop road
E24		10	1B1, 1B4, 1C1, 1C3, 2B2, 2B3, 2B4, 2C2, 2C3, 2C4
		1(prob)	one on loop road
		10	1B1, 1B4, 1C1, 1C3, 2B1, 2B2, 2B3, 2C2, 2C3, 2C4
		1(prob)	one on loop road
		8	1B1, 1B4, 1C1, 2B2, 2B3, 2C2, 2C3, 2C4
		8	1B1, 1B4, 1C1, 2B2, 2B3, 2C2, 2C3, & one on road
E31		6	1B2, 1B3, 1C1, 1C2, 1C3, 2B2
		8	1B2, 1B3, 1B4, 1C1, 1C2, 1C4, 2B4, 2C3
		8	1B2, 1B3, 1B4, 1C1, 1C2, 1C4, 2B4, 2C3
		8	1B2, 1B3, 1B4, 1C2, 1C3, 1C4, 2B4, 2C4
		9	1B2, 1B3, 1B4, 1C2, 1C3, 1C4, 2B3, 2B4, 2C4
		8	1B3, 1B4, 1C2, 1C3, 2B3, 2B4, 2C3, 2C4
		8	1B1, 1B3, 1C2, 1C3, 2B3, 2B4, 2C3, 2C4
		7	1B1, 1B3, 1C2, 1C3, 2B3, 2B4, 2C4
E33		7	1B1, 1B2, 1B3, 1C1, 1C2, 1C4, 2C4
		11	1B1, 1B2, 1B3, 1C1, 1C2, 2B1, 2B3, 2B4, 2C1, 2C2, 2C3
		11	1B1, 1B2, 1C1, 1C2, 1C4, 2B1, 2B2, 2B3, 2C1, 2C2, 2C3
		11	1B1, 1B2, 1C1, 1C2, 1C4, 2B1, 2B2, 2B4, 2C1, 2C2, 2C3
E33		11	1B1, 1B3, 1C1, 1C2, 1C4, 2B1, 2B2, 2B3, 2C1, 2C2, 2C3
		11	1B1, 1B2, 1B3, 1C1, 1C2, 1C4, 2B1, 2B3, 2C1, 2C2, 2C3
		11	1B1, 1B2, 1B3, 1C1, 1C2, 2B1, 2B2, 2B3, 2C1, 2C2, 2C3
		9	1B1, 1B2, 1C1, 1C2, 2B2, 2B3, 2C1, 2C2, 2C3
Borovsk		15 (approx)	Western missile-hold hardstand
		5	Eastern missile-hold hardstand
		1	Large receiving bldg.
		19	Western missile-hold hardstand
		10	Eastern missile-hold hardstand
		19	Western missile-hold hardstand
		12	Eastern missile-hold hardstand
		19	Western missile-hold hardstand
		11	Eastern missile-hold hardstand
		19	Western missile-hold hardstand
		13	Eastern missile-hold hardstand
		19	Western missile-hold hardstand
		11	Eastern missile-hold hardstand
		17	Western missile-hold hardstand
		12	Eastern missile-hold hardstand
Borovsk		17	Western missile-hold hardstand
		12	Eastern missile-hold hardstand
		17	Western missile-hold hardstand
		11	Eastern missile-hold hardstand
		18	Western missile-hold hardstand
		12	Eastern missile-hold hardstand
		1	Large receiving bldg.
		1	Loop road
		17	Western missile-hold hardstand
		15	Eastern missile-hold hardstand
		1	Loop road

Naro-Fominsk ABM/Space Tracking Radar Sites A and B

24. No significant change was observed during the reporting period.

Moscow ABM Support Facility Borovsk and Moscow ABM Training Site D25-1

25. No significant changes in facilities were observed during the reporting period. A training site D25-1 a GALOSH canister and a transporter were observed near the launcher on This was the second time a canister had been observed at the training site. 25X1

REFERENCES

25X1

Maps or Charts

ACIC. US Air Target Chart, Series 200, Sheet M0154-22HL, 4th ed, Mar 68, scale 1:200,000 (SECRET 25X1

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DOCUMENTS

1. NPIC RCA-02/0005/72, *Moscow ABM Facilities,* Jul 72 (TOP SECRET 25X1 25X1

2. NPIC. RCA-03/0003/72, *Parabolic Antennas,* Oct 72 (TOP SECRET 25X1 25X1

3. NPIC. RCA-02/0004/72, Chekhov ABM/Space Radar Sites A and B, Jun 72 (TOP SECRET 25X1 25X1

REQUIREMENT

COMIREX B01
NPIC/IEG/MSD/MSB Project 223100