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REPORT

ACTIVITY LEVELS AT RAIL-TO-ROAD TRANSFER POINTS AT SOVIET SSM COMPLEXES USSR

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JUNE 1972

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ABSTRACT

1. This report presents the results of a study of the activity levels of missile support equipment at the rail-to-road transfer points (RTPs) of the 24 Soviet ICBM complexes and the two MR/IRBM complexes where the SS-11 missile system is deployed. This study was prepared in support of a larger study which attempts to determine means of early detection of additional silo construction changes to existing missile complexes and phasing out of existing systems.

2. Six major types of equipment were catalogued in this study, including 18 specific pieces of equipment. The major categories considered here are missile handling, propellant handling, rail cars, miscellaneous equipment, miscellaneous vehicles, and warhead handling.

3. This report includes 85 tables arranged by missile system, cataloguing each of the six major types of equipment, numbers observed, dates observed, and locations within the RTP. The report also includes two photographs, examples of the areas and facilities studied.

INTRODUCTION

4. The rail-to-road transfer point (RTP) is a standard installation for the receipt, inspection, maintenance, and distribution of missiles, warheads, propellants, and their associated equipment. Each of the 24 ICBM complexes and the two MR/IRBM complexes with SS-11 missiles has such a facility (Figure 1). The overall layout of these RTPs is essentially similar within each of the five missile systems. The RTPs for the SS-7 and SS-8 systems are fairly simple in their respective layouts, while those for the other three missile systems (SS-9, SS-11, and SS-13) generally are more elaborate.

5. Construction for the RTPs normally began about nine to 13 months after the start of launch site construction. This is especially true for those complexes which had a second system added. Most of the buildings in the RTPs were completed and actively supporting the missile system within a 12-month construction period. However, construction has continued at some of these facilities until the present. Most of this construction has been confined to additional missile handling and propellant-associated buildings.

6. Seven major types of equipment have been identified within these 26 RTPs. These types are: missile handling, propellant handling, rail cars, miscellaneous equipment, miscellaneous vehicles, warhead handling, and missile checkout. However, since the equipment from the missile checkout category is primarily associated with launch site activity, this type of equipment is the subject of a separate report and is not included in this study.

7. The missile-handling equipment includes missile transporters, first- and second-stage transporters, silo loaders, and hoisting fixtures; the propellant-handling equipment includes propellant, fuel, and oxidizer transporters; the rail cars include the missile, propellant, fuel, oxidizer, and liquid oxygen (lox) cars; the miscellaneous equipment and vehicles include silo checkout frames, house trailers, and cranes; and the warhead-handling equipment includes the warhead vans and canisters. A total of 31 individual pieces of equipment were examined and catalogued for this study. Thirteen of these were considered to be insignificant or nondescript and were not included in this study. This would include unidentified vehicles, pieces of equipment, cargo trucks, prime movers, water trucks, and others. This left 18 pieces of equipment within the six major types.

8. A total of 15 different functional facilities or areas have been identified within the 26 RTPs. Only the ten where the subject 18 pieces of equipment were observed were considered in this report. The five areas not included were the component storage area, the GSE training area, and the SS-7 maintenance area at the SS-13 complex, Yoshkar-Ola; the pyrotechnic area at the six SS-9 complexes; and the supply area at the SS-8 complex, Omsk.

9. A general description of the ten facilities or areas considered in this report follows.

General Support Area (GEN)

10. This is the utilities area of the RTP. It includes a heating plant with an adjacent rail-served POL storage area, normally a fire station, and a receiving area for miscellaneous non-missile supplies.

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25X1

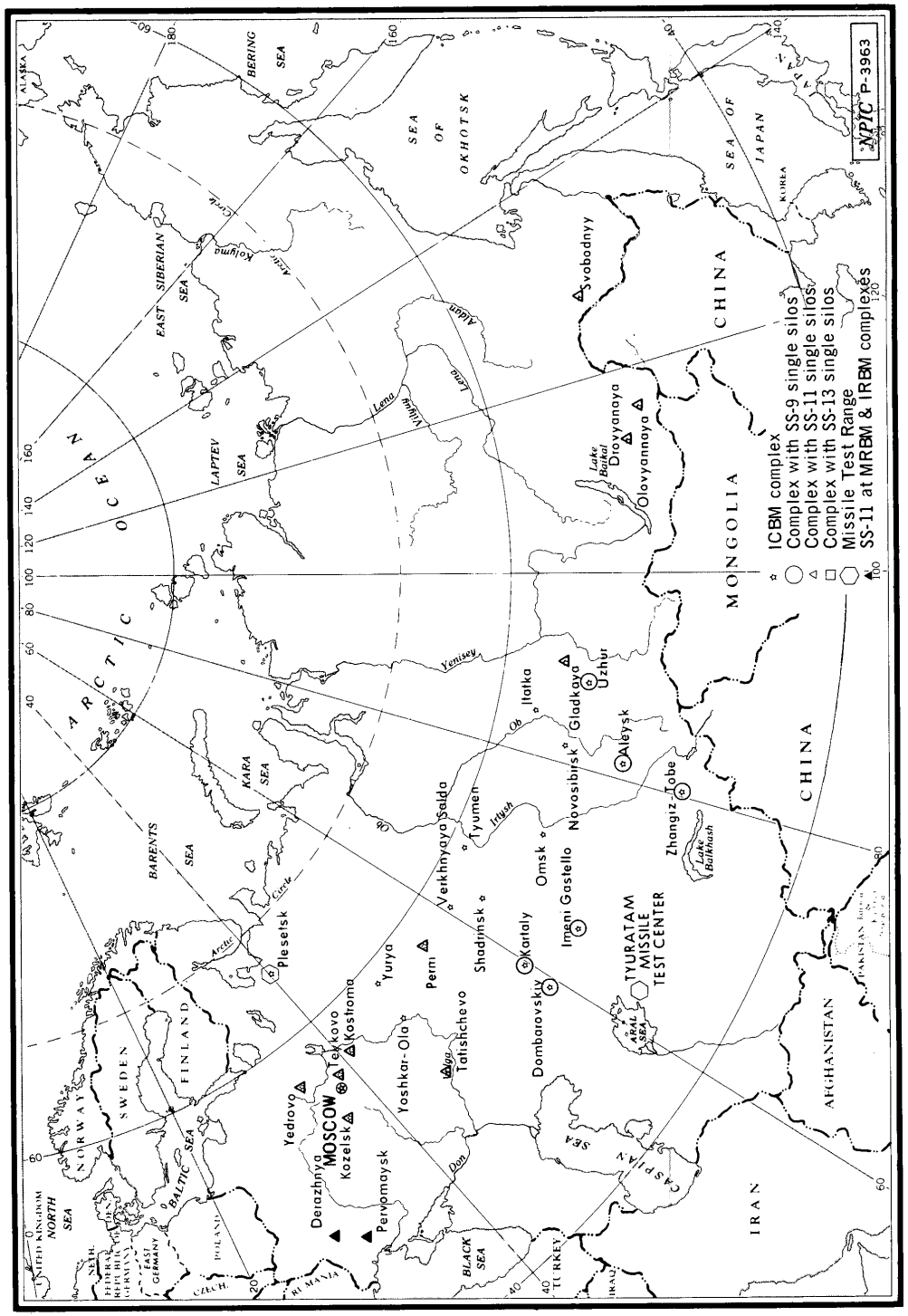

FIGURE 1. LOCATION OF THE 26 SSM COMPLEXES WHERE ICBMs ARE DEPLOYED

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Ground Support Equipment (GSE) Maintenance Area

11. An area of garages fronting on a common apron is used for the storage and maintenance of several different pieces of equipment. Included may be propellant transporters, prime movers, stage transporters, vans, trucks, and miscellaneous pieces of equipment. At those complexes with two missile systems, a second set of garages was constructed either adjacent to the original ones or in another part of the RTP.

Maintenance and Shop Area (MSA)

12. This area is found at only a few complexes. Except for the fact that the area normally contains garage or shop-type buildings and a larger maintenance-type building, no specific function can be determined.

Propellant Facility (PRO)

14. Associated with the SS-7, SS-9, and SS-11 RTPs, this facility contains buildings or bunkers for the receipt, storage, handling, and disposal of the propellant. At the single-silo complexes, the maintenance and storage of the handling equipment is within this facility.

Receiving Area (REC)

15. This rail-served area is used for the receipt of missile-related items. Normally there is a separate rail spur for the receipt of the propellants, for the missiles, and for the warhead.

Receiving, Inspection, and Maintenance Facility (RIM)

16. This is the major missile and missile-equipment maintenance area. This rail-served area contains large garage buildings for the maintenance and inspection of the missile and some of the associated missile-handling equipment. A large clerestory-type inspection building is associated with the SS-7, SS-9, and SS-13 missile systems, while a flat-roofed four-bay garage is associated with the SS-11. No specific area has been identified for the SS-8 system.

Training Site (TRN)

17. This is a single-silo launch site located at or very near each of the RTPs for complexes with single-silo launch sites. It is used in training the crews in handling the pieces of equipment associated with that missile system. Some of these sites are also used for a parking area for several pieces of GSE.

Unidentified Area (UNI)

18. This is an area of recent construction at most single-silo complexes for an undetermined function. A large building is under construction at most of these areas.

Vehicle Maintenance Area (VEM)

19. An area found at Kozelsk which may equate to either a RIM- or GSE-related facility for the SS-8 missile, this area contains several garage-type buildings fronting on a common apron.

20. This report is divided into five major sections, one for each ICBM system. The first three sections contain tables for equipment found at those complexes exclusively deploying the SS-7, SS-8, and SS-9 missiles. The fourth section contains tables for all equipment found at complexes deploying the SS-11 system. This includes the SS-7 equipment found at eight of these complexes and SS-8 equipment found at one of these complexes. In addition, the SS-11 equipment found in the RTP at the Derazhnya and the Pervomaysk SSM Complexes is included in this section. The SS-4 equipment at

Derazhnya and the SS-5 equipment at Pervomaysk are not included. The fifth section contains tables for all equipment, both SS-7 and SS-13, found at the only SS-13 complex.

21. Within each section the tables are arranged by the seven major types of equipment. Each table lists those complexes where the particular piece of equipment has been seen. The complexes are arranged alphabetically. Within each complex, the sightings are arranged by date (year, month, and day--721116 is November 16, 1972). To the right side of the number of pieces of equipment present is a trinome for the facility or area of the RTP where the equipment is located. (A listing of these trinomes can be found at the end of this report. The listing is located so that it can conveniently be folded out for ready reference with the tables.) This trinome represents the one for the specific missile system associated with the facility or area. When, for example, SS-7 transporters are in the SS-7 RIM facility only the trinome "RIM" is used; however, if this same equipment were in the SS-11 RIM facility, the trinome would be amended to read "SS-11 RIM." When one piece of equipment is found in more than one area on a specific date, each area or facility is listed with its respective count.

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SS-7

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BASIC DESCRIPTION

SS-7

22. Each of the five SS-7 RTPs contains a receiving area, a RIM facility, a propellant facility, a GSE maintenance area, and a general support area. In addition, [redacted] an unidentified area are at the RTP at Novosibirsk. 25X1

23. An attempt to correlate the number of launchers at an SS-7 complex with the amount of a specific piece of equipment at the RTP resulted in little positive information. There appears to be no firm correlation between the exact numbers of a specific piece of equipment and the number of launchers at the complex.

Itatka

24. This RTP supports three soft sites with a total of six launchers. Each launch site has at least three maintenance garages.

25. There is normally little if any equipment seen at the RTP. The only explanation may be that the work is done at the launch sites or that the equipment is most commonly kept in garages and other buildings at the RTP.

Novosibirsk

26. This RTP is one of the largest for the SS-7 system and supports five launch sites with a total of 12 launchers (six hard and six soft).

[redacted] 25X1

28. Construction for a large maintenance-type building began in May 1967 at the main entrance to this facility. Only trucks, small vehicles, and prime movers have been observed in front of this 11-bay building. A missile transloading operation was underway at this installation in June 1969. Equipment is normally present on most missions, but in only moderate amounts.

Shadrinsk

29. Although this RTP supports the same number of launch sites as the Itatka RTP, more types and greater amounts of equipment are observed at Shadrinsk.

30. The amount of equipment observed, however, is generally low at this complex.

Verkhnyaya Salda

31. The RTP supports nine launch sites with 14 soft and six hard launchers. This is the second largest SS-7 complex--in terms of launchers--but the RTP does not reflect this size. In fact, this facility is about the same size as the one at Itatka.

32. An additional four-bay propellant transporter garage was added to the GSE maintenance area in June 1967. This garage was near the receiving area warehouse and appears to be used for vehicle storage only.

33. Stage transporters are commonly observed near the unloading dock in the GSE maintenance area near the receiving area. These pieces of equipment are frequently in different positions, but their count is fairly stable.

Yurya

34. This is the largest SS-7 RTP and supports 11 launch sites with 16 soft and nine hard launchers.

35. Three vehicle maintenance garages were started in May 1967 immediately north of--but not connected to--the RIM facility. Two of these garages were completed by January 1970, while the third

25X1

has never advanced beyond a foundation. Only small vehicles, trucks, and prime movers have been observed in the area.

36. This is the only RTP with two drive-through, earth-mounded, maintenance-type buildings. Their specific function cannot be determined. The one drive-through building at Novosibirsk and the one at the Yedrovo RTP may serve similar functions.

37. Missile transporters and stage transporters are frequently observed on the loop road on the western side of the propellant facility. This loop road connects the receiving area to the RIM facility.

25X1

Table 1. SS-7 Missile Transporter

Date (yr, mo, dy)	Count
NOVOSIBIRSK	
	1
	1
ALL IN RIM	
	1
	1
VERKHNYAYA SALDA	
	2
RIM	
	1
GSE	
	1
RIM	
	1
RIM	
	1
RIM	
	4
GSE (3) RIM (1)	
	1
RIM	
	1
RIM	
YURYA	
	2
PRO	
	1
RIM	
	2
PRO	
	2
PRO	
	6
PRO (4) REC (1) RIM (1)	
	3
PRO (2) RIM (1)	
	2
PRO	
	2
PRO	
	1
PRO	
	3
PRO	

Table 2. SS-7 First-Stage Transporter

NOVOSIBIRSK	
	2
GSE	
	2
RIM (1) REC (1)	
	1
GSE	
	1
GSE	
	1
GSE	
	1
GEN	
	1
GSE	
SHADRINSK	
	2
REC	
	2
REC	
	1
RIM	
	3
REC	
	1
REC	
	2
REC	
	1
REC	
	2
RIM	
	3
RIM	
	3
RIM	
	6
RIM	

25X1

25X1

Table 2. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
VERKHNYAYA SALDA	
2	RIM
2	RIM
4	RIM (2) GSE (2)
8	GSE (6) RIM (2)
8	GSE (5) RIM (3)
3	GSE
3	GSE
4	GSE
3	GSE (2) RIM (1)
1	RIM
6	REC
7	REC
8	GSE (7) REC (1)
3	GSE
6	GSE
6	REC (5) RIM (1)
5	GSE
YURYA	
5	PRO (4) GSE (1)
1	PRO
1	PRO
2	PRO
1	REC
3	PRO

Table 3. SS-7 Second-Stage Transporter

NOVOSIBIRSK	
4	GSE
1	GSE
1	GSE
1	GSE
1	GSE
1	GEN
SHADRINSK	
1	REC
2	REC
1	RIM
3	REC
2	REC
1	REC
2	RIM
1	RIM

25X1

25X1

Table 3. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)

VERKHNYAYA SALDA

25X1

2	GSE
2	RIM
2	RIM
4	RIM (2) GSE (2)
8	RIM (2) GSE (6)
8	RIM (3) GSE (5)
3	GSE
3	GSE
4	GSE
1	RIM
1	RIM
7	RIM (1) REC (6)
7	GSE (1) REC (6)
7	GSE (1) REC (6)
4	GSE
6	REC (5) RIM 1
6	REC

YURYA

2	PRO
2	PRO
2	PRO
2	PRO
1	REC
2	PRO
3	PRO

Table 4. SS-7 Silo Loader

SHADRINSK

1	RIM

YURYA

2	
1	ALL IN PRO
2	
1	

Table 5. SS-7 Hoisting Fixture

NOVOSIBIRSK

2	GSE

25X1

25X1

Table 5. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
VERKHNYAYA SALDA	
6	GSE
10	"
10	"
2	"
2	"
1	RIM
4	GSE
8	"
8	"
YURYA	
4	REC
1	RIM
4	REC
4	REC

25X1

Table 6. SS-7 Propellant Transporter

ITATKA	
1	GSE
NOVOSIBIRSK	
3	GEN
4	PRO
3	PRO
SHADRINSK	
2	PRO
VERKHNYAYA SALDA	
2	GSE (1) RIM (1)
1	RIM
4	GSE
5	REC
2	GSE
2	RIM
2	RIM
YURYA	
5	PRO (4) GSE (1)
1	PRO
6	GSE (3) PRO (3)

Table 7. SS-7 Oxidizer Transporter

ITATKA	
1	GSE

25X1

Table 7. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
NOVOSIBIRSK	
	3 PRO
	3 "
	3 "
	3 "
	3 "
	3 "
	1 GSE
	1 GSE
SHADRINSK	
	2 PRO
	1 PRO
VERKHNYAYA SALDA	
	7 GSE (6) PRO (1)
	1 GSE
	4 GSE
	5 GSE
	5 GSE (2) PRO (3)
	1 GSE
	3 GSE
	1 GSE
	3 PRO (2) RIM (1)
	3 GSE
	6 RIM
	8 GSE (7) PRO (1)
	7 GSE
	3 GSE
	3 GSE
YURYA	
	1 GSE
	2 PRO
	1 PRO

Table 8. SS-7 Fuel Transporter

ITATKA	
	1 GSE

25X1

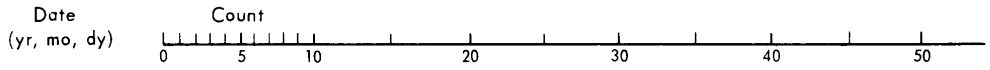
Table 8. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
NOVOSIBIRSK	
	25X1
4	GSE (1) PRO (3)
1	PRO
1	PRO
1	PRO
1	PRO
2	PRO
1	PRO
1	GSE
2	PRO
3	PRO
SHADRINSK	
1	GSE
3	PRO
1	PRO
VERKHNYAYA SALDA	
1	RIM
7	"
6	"
5	"
5	"
7	"
7	"
7	"
5	"
6	"
6	"
6	"
3	GSE
6	GSE (3) PRO (3)
5	PRO
3	PRO
3	GSE
5	GSE
1	GSE
1	GSE
YURYA	
6	PRO
4	PRO
4	PRO (1) GSE (3)
2	PRO (1) RIM (1)
4	GSE
3	PRO (2) GSE (1)
2	GSE
5	PRO (2) GSE (3)
6	PRO (3) GSE (3)
3	PRO
3	PRO
4	PRO
4	PRO
4	PRO
1	GSE

25X1

25X1

Table 9. Propellant Rail Car



NOVOSIBIRSK

5	REC
4	REC

25X1

SHADRINSK

3	REC

Table 10. Oxidizer Rail Car

SHADRINSK

2	REC

Table 11. Fuel Rail Car

NOVOSIBIRSK

6	REC

SHADRINSK

8 9 8 1 1 1 1 1 1 1 1	ALL IN REC

VERKHNYAYA SALDA

4 4 5	ALL IN REC

Table 12. Missile Rail Car

ITATKA

1 2 2 1 2 2 2 1 1 6	ALL IN REC

25X1

25X1

Table 12. (Continued)

Date (yr, mo, dy) | Count (0 5 10 20 30 40 50)

NOVOSIBIRSK

25X1

1
2 ALL IN REC
1
1
1
1
2
1
2
2
1
3
1
1

SHADRINSK

7
2 ALL IN REC
4
9
2
4
1
3
2
2
2

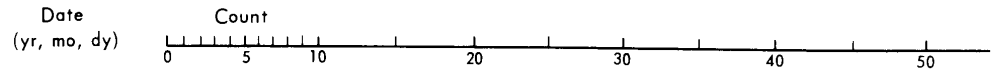
VERKHNYAYA SALDA

4
1 ALL IN REC
2
1
1
3
2
1
3
1
2
2
2
2

25X1

25X1

Table 12. (Continued)



YURYA

25X1

4	
2	ALL IN REC
4	
3	
3	
2	
2	
4	
2	
2	
3	
2	
2	
2	
1	
3	

Table 13. House Trailer

ITATKA

2	REC

NOVOSIBIRSK

1	UNI
1	UNI
1	RIM

VERKHNYAYA SALDA

1	GSE

Table 14. Crane

ITATKA

1	
1	ALL IN GSE
1	
1	
2	
1	

NOVOSIBIRSK

1	REC
4	GSE (3) RIM (1)
2	GSE
3	GSE
1	GSE

25X1

25X1

25X1

Table 14. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
VERKHNYAYA SALDA	
25X1	
	1 GSE
	1 "
	1 "
	1 "
	1 "
	1 "
	1 "
	2 "
	1 "
	1 "
	7 RIM
	2 GSE
	2 GSE
YURYA	
	2 PRO
	4 GSE
	1 GSE

25X1

SS-8

38. Each of the two SS-8 RTPs contains a receiving area, a GSE maintenance area, and a general support area. In addition, there is a supply area at the Omsk RTP. Both facilities are generally small and the level of activity cannot be compared to the larger RTPs for the other missile systems.

Omsk

39. This RTP supports only one site which has three hard launchers. The amount of equipment normally observed in this RTP seldom varies. This equipment includes two lox rail cars, two-to-four propellant transporters, and two or three missile transporters.

Tyumen

40. This RTP supports two launch sites, both with two soft launchers. The level of equipment seen at this RTP is nearly identical to that seen at Omsk.

41. No change in the level of equipment was noted during August 1971, when the oxidizer storage tanks at the launch sites were being reworked.

Table 15. SS-8 Missile Transporter

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
OMSK	
2	
2	ALL IN GSE
2	
2	
2	
3	
1	
1	
2	
2	
3	
1	
1	
1	
1	
1	
2	
1	
1	
3	
3	
3	
3	
TYUMEN	
1	REC
1	GSE
1	"
1	"
2	"
3	"
1	"
1	"
1	"
1	"
1	REC
1	GSE
1	"
2	"
1	"
2	"
1	"
1	"
1	"

Table 16. SS-8 Propellant Transporter

OMSK	
2	GSE

Table 17. SS-8 Oxidizer Transporter

Date (yr, mo, dy)	Count	
	0 5 10 20 30 40 50	
OMSK		
	2	GSE
	2	"
	2	"
	2	"
	2	"
	2	"
	2	"
	2	"
	1	"
	2	"
	2	"
	2	"
	2	"
	3	GSE (2) REC (1)
	3	GSE (2) REC (1)
	3	GSE (2) REC (1)
	3	GSE (2) REC (1)
	3	GSE (2) REC (1)
	3	GSE (2) REC (1)
	2	GSE
	3	GSE (2) REC (1)
	3	GSE (2) REC (1)
	2	GSE (2)
	3	GSE
	2	GSE
TYUMEN		
	3	GSE
	3	"
	3	"
	3	"
	2	"
	2	"
	3	"
	3	"
	3	"
	3	"
	3	"
	3	"
	3	"
	3	RIM
	3	GSE
	2	"
	2	"
	3	"
	3	"

25X1

Table 18. SS-8 Fuel Transporter

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
OMSK	
	25X1
2	GSE
2	"
2	"
2	"
2	"
2	"
2	"
2	"
2	"
2	"
2	"
2	"
2	"
3	"
2	"
2	"
2	"
2	"
2	"
2	"
2	"
2	"
2	"
2	"
1	REC
2	GSE
2	GSE
TYUMEN	
3	GSE
3	"
4	"
3	"
3	"
1	"
2	"
3	"
3	"
3	"
3	"
3	"
3	"
3	"
3	"
2	"
1	GEN
3	RIM
3	GSE
2	"
3	"
3	"
3	"
3	"
6	"
6	"

25X1

25X1

Table 19. Missile Rail Car

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
OMSK	
1 1 1 1 1 1	ALL IN REC
TYUMEN	
1 2 2 1 2 1	ALL IN REC

Table 20. Liquid Oxygen Rail Car

OMSK	
2 2 2 2 2 2 2 2 2 2 2 3 2 2 2 2 2 1 2 2 2 1 2	ALL IN REC

25X1

Table 20. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
TYUMEN	
1	
2	ALL IN REC
2	
2	
2	
2	
2	
2	
2	
2	
1	
2	
2	
2	
2	
2	

Table 21. SS-8 Hoisting Fixture

OMSK	
1	REC
1	GSE
TYUMEN	
1	
1	ALL IN GSE
1	
1	
1	
1	
1	

Table 22. Crane

OMSK	
2	
1	ALL IN GSE
2	
1	
1	
TYUMEN	
1	GSE
3	GSE

6-SS

SS-9

42. The RTP at the six SS-9 ICBM complexes can be divided into eight distinct functional areas. Each RTP has a propellant facility, a RIM facility, a GSE maintenance area, a receiving area, a pyrotechnics area, an unidentified area, and a general support area. 25X1

43. Although the number of launchers supported by these six RTPs varies, the garage space indicates that a standard number of most types of equipment is present. All maintenance, storage, and repair of the missile and its associated equipment is probably accomplished at the RTP. Each launch group has one building at the control site that could possibly handle some of the more minor types of repair.

44. At the present time, construction for the SS-9-related areas has been completed. Construction continues for the additional facilities required by the type IIIF sites currently under construction at five of these complexes.

Aleysk

45. This RTP supports 30 SS-9 single-silo launch sites. Small warhead canisters have been observed only at this RTP. A high of 40 has been seen near a recently constructed probable warhead handling building 25X1

46. SS-7 stage transporters have also been observed at this RTP. They probably were early prototype models for the SS-9 first stage. Two pieces of equipment of unusual configuration have also been seen only at this facility. 25X1 25X1

Dombarovskiy

47. This RTP supports 60 SS-9 single-silo launch sites and five type IIIF launch sites. New construction probably in support of the type IIIF sites has been observed 25X1 near the distribution point immediately north of the RTP. In the warhead facility, 25X1 a new building foundation was observed in August 1971. 25X1 . Near the distribution point, a possible missile receiving area is under construction. This is 25X1 similar to one seen at the Tyuratam Missile Test Center.

48. Previous studies indicated that 16 oxidizer and 16 fuel transporters were needed to support the complex. However, a review of photography indicated that a high of 20 oxidizer and 21 fuel transporters were present in June 1968. This represents the only time that more than the expected 16 each were observed.

Imeni Gastello

49. This RTP supports 48 SS-9 single-silo launch sites and five type IIIF launch sites. New construction for support of the type IIIF sites has not been observed.

50. The largest number of warhead canisters observed here was 34, in April 1971. Approximately 20 canisters are normally seen at this facility.

Kartaly

51. This RTP supports 42 SS-9 single-silo launch sites and five type IIIF launch sites. New construction for support of the type IIIF sites has not been observed.

52. No significant or unusual amounts of equipment have been seen at this RTP.

Uzhur

53. This RTP supports 60 SS-9 single-silo launch sites and five type IIIF launch sites. New construction probably related to the type IIIF sites has been observed 25X1 This construction, consisting of a building foundation, is similar in size and probably in function to the one at Dombarovskiy.

25X1

25X1

54. Both first- and second-stage transporters are frequently parked at the training site.

Zhangiz-Tobe

55. This RTP (Figure 2) supports 48 SS-9 single-silo launch sites and five type IIIF launch sites. A new building, similar in size and probable function to the ones at Dombarovskiy and Uzhur, is under construction just outside the security fence 25X1

56. Vehicles, pieces of equipment, and warhead canisters are frequently observed in open, designated parking areas, although the RTP has the normal complement of garages and storage buildings. It is possible that more vehicles than can be housed are assigned to this complex or that the garages are used for other purposes. The largest number of warhead canisters observed here was 56 in June 1971.

25X1

25X1

Table 23. SS-7 First-Stage Transporter

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
ALEYSK	
	2 SS-9 GSE
	5 SS-9 GSE

25X1

Table 24. SS-9 First-Stage Missile Transporter

ALEYSK	
	5 RIM
	2 "
	4 "
	6 GSE (4) PRO (1)
	5 GSE (1)
	5 GSE (1)
	5 RIM
	6 "
	5 "
	5 "
	1 "
	1 "
	1 "
	1 "
	4 "
DOMBAROVSKIY	
	3 RIM
	1 RIM
	2 RIM
	4 GSE (2) RIM (2)
	4 GSE (2) RIM (2)
	4 GSE (2) RIM (2)
	1 GSE
	1 GSE
	1 GSE
	1 GSE
	1 GSE
	3 GSE (1) PRO (1)
	1 GSE
IMENI GASTELLO	
	4
	6 ALL IN RIM
	3
	4
	4
	3
	1
	1
	1
	2
	2

25X1

25X1

Table 24. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
KARTALY	
	2 RIM
	3 RIM
	3 GSE (1) RIM (2)
	1 GSE (1) RIM (2)
	2 RIM
	2 RIM
	1 GSE
	1 GSE
	1 RIM
	1 GSE
	2 GSE (1) TRN (1)
	2 GSE
	1 GSE
UZHUR	
	4 REC
	4 RIM
	5 "
	4 "
	6 "
	6 "
	5 TRN
	3 GSE (2) RIM (1)
	6 TRN
	2 RIM
	5 TRN
ZHANGIZ-TOBE	
	5 RIM
	5 "
	3 "
	5 "
	3 GSE
	2 RIM
	2 RIM
	2 GSE
	3 GSE
	3 GSE

Table 25. SS-9 Second-Stage Missile Transporter

ALEYSK	
	5 RIM
	5 "
	4 "
	2 "
	4 "
	4 "
	3 "
	5 RIM (2) GSE (1)
	3 RIM
	3 GSE (1) RIM (2)
	1 RIM
	1 GSE
	1 GSE

25X1

Table 25. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
DOMBAROVSKIY	
	3 RIM
	1 RIM
	2 RIM
	4 GSE (2) RIM (2)
	4 GSE (2) RIM (2)
	4 GSE (2) RIM (2)
	1 GSE
	1 GSE
	1 GSE
	1 GSE
	1 GSE
	3 GSE (1) PRO (1)
	2 GSE
IMENI GASTELLO	
	4
	6 ALL IN RIM
	3
	4
	4
	3
	1
	1
	1
	2
	2
KARTALY	
	2 RIM
	3 RIM
	2 RIM
	1 GSE
	2 RIM
	2 RIM
	1 GSE
	1 "
	2 "
	1 "
	1 "
	2 "
	1 "
	1 "
	1 "
UZHUR	
	4 REC (4)
	4 RIM
	5 "
	4 "
	6 "
	6 "
	5 TNG
	6 GSE (2) TNG (2)
	4 TNG
	4 TNG
	1 RIM

Table 25. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
ZHANGIZ-TOBE	
	5 RIM
	5 "
	3 "
	5 "
	3 GSE (2) RIM (1)
	1 RIM
	1 RIM
	1 GSE
	2 GSE
	2 GSE
	1 GSE

Table 26. SS-9 Silo Loader

DOMBAROVSKIY	
	2 RIM
	1 GSE
	1 GSE
	1 REC
	1 GSE
IMENI GASTELLO	
	2 RIM
	2 RIM
KARTALY	
	1 RIM
	2 RIM
	3 RIM
	1 REC
	1 REC
UZHUR	
	1 RIM
	1 "
	1 "
	1 "
	1 "
	2 "
	2 TRN
	1 TRN
ZHANGIZ-TOBE	
	1 RIM
	1 "
	4 "
	4 GSE
	1 RIM
	1 "
	1 "

Table 27. SS-9 Hoisting Fixture

Date (yr, mo, dy)	Count	
ALEYSK		
25X1	4	RIM
	4	"
	4	"
	2	"
	6	"
	6	"
	2	"
	2	"
	2	"
	4	GSE
	2	RIM
	2	"
DOMBAROVSKIY		
	2	RIM
	4	GSE
	4	"
	4	"
	4	"
	4	"
	4	"
	4	"
	4	"
	4	"
	4	"
	4	"
	4	"
	4	"
IMENI GASTELLO		
	2	RIM
	6	"
	4	"
	4	PRO
	4	RIM
	4	"
	2	"
	2	"
	2	"
	4	"
	2	"
	2	"
	2	"

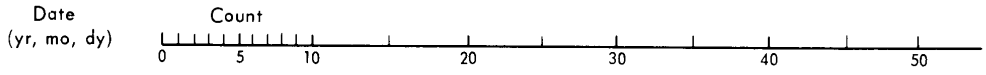
Table 27. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)	
KARTALY		
2	RIM	
2	"	ALL ITEMS WERE OBSERVED IN THE RIM AREA
1	"	
3	"	
4	"	
4	"	
4	"	
2	"	
2	"	
5	REC (1) RIM (4)	
4	RIM	
4	"	
4	"	
4	"	
3	"	
4	"	
4	"	
4	"	
3	"	
3	"	
4	"	
4	"	
4	"	
4	"	
UZHUR		
2	PRO	
4	PRO (2) GSE (2)	
2	REC	
ZHANGIZ-TOBE		
2	RIM	
2	"	
2	"	
2	"	
2	GSE	
2	RIM	
2	"	
2	"	
1	GSE	
3	GSE	

Table 28. SS-9 Propellant Transporter

ALEYSK		
1	REC	
DOMBAROVSKIY		
4	PRO	
2	GSE	
1	PRO	
1	PRO	
3	PRO	
1	PRO	

Table 28. (Continued)



IMENI GASTELLO

	12	RIM
	5	PRO
	6	RIM
	3	RIM
	7	RIM
	4	RIM

UZHUR

	7	PRO
1		"
2		"

ZHANGIZ-TOBE

	37	PRO
	40	PRO
	40	PRO
3		PRO
2		PRO

Table 29. SS-9 Oxidizer Transporter

ALEYSK

1		PRO
3		TRN
3		TRN
1		UNI
1		GEN
1		PRO

DOMBAROVSKIY

2		PRO
		PRO
	10	REC
	20	GSE (7) REC (13)
4		PRO
1		PRO
	7	PRO

IMENI GASTELLO

3		RIM
	14	RIM (3) PRO (9) GEN (2)
5		RIM
	9	PRO
	8	PRO

KARTALY

1		PRO
	6	PRO
1		RIM
2		PRO
	10	PRO
2		PRO

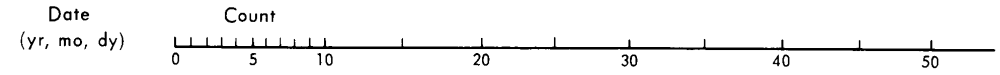
Table 29. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
UZHUR	
	10 PRO
	10 "
	"
3	"
3	"
3	"
ZHANGIZ-TOBE	
	10 PRO
	24 PRO
3	PRO
1	PRO
7	RIM (2) PRO (5)

Table 30. Fuel Transporter

ALEYSK	
	17
2	ALL IN PRO
2	
4	
DOMBAROVSKIY	
2	PRO
2	PRO
	21 PRO (12) GSE (9)
4	GEN
13	PRO
IMENI GASTELLO	
5	
5	ALL IN PRO
5	
1	
KARTALY	
5	GSE
4	PRO
7	PRO
7	PRO
UZHUR	
3	
3	ALL IN PRO
1	
1	

Table 30. (Continued)



ZHANGIZ-TOBE

25X1

12		
14	ALL IN PRO	
6		
6		
14		
10		
8		
4		
2		

Table 31. Propellant Rail Car

ALEYSK

4	REC
3	REC
3	REC

DOMBAROVSKIY

2	REC
7	REC
1	REC

IMENI GASTELLO

2	REC

KARTALY

6	REC
10	REC

UZHUR

2	REC

ZHANGIZ-TOBE

1	REC
1	REC

Table 32. Oxidizer Rail Car

ALEYSK

3	REC
2	PRO

25X1

Table 32. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
DOMBAROVSKIY	
2	REC
5	"
9	"
6	"
5	PRO
6	REC
2	"
4	"
4	"
4	"
IMENI GASTELLO	
3	PRO
3	PRO
KARTALY	
4	
9	ALL IN REC
4	
4	
5	
5	
9	
3	
UZHUR	
6	REC
5	REC
6	REC (4) GEN (2)
ZHANGIZ-TOBE	
6	REC
1	REC

Table 33. Fuel Rail Car

ALEYSK	
2	REC
3	REC
3	REC
DOMBAROVSKIY	
1	REC
1	REC
1	PRO
1	REC
3	PRO
IMENI GASTELLO	
1	REC

25X1

25X1

Table 33. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
KARTALY	
25X1	
1	
2	ALL IN REC
1	
1	
1	
UZHUR	
2	REC
3	REC
ZHANGIZ-TOBE	
1	
10	ALL IN REC
5	
5	
1	

Table 34. Missile Rail Car

ALEYSK	
2	
4	ALL IN REC
2	
2	
6	
4	
2	
4	
DOMBAROVSKIY	
3	
7	ALL IN REC
6	
7	
4	
6	
13	
12	
15	
5	
1	
5	
3	
3	
3	
1	
3	
3	
14	
2	

25X1

Table 34. (Continued)

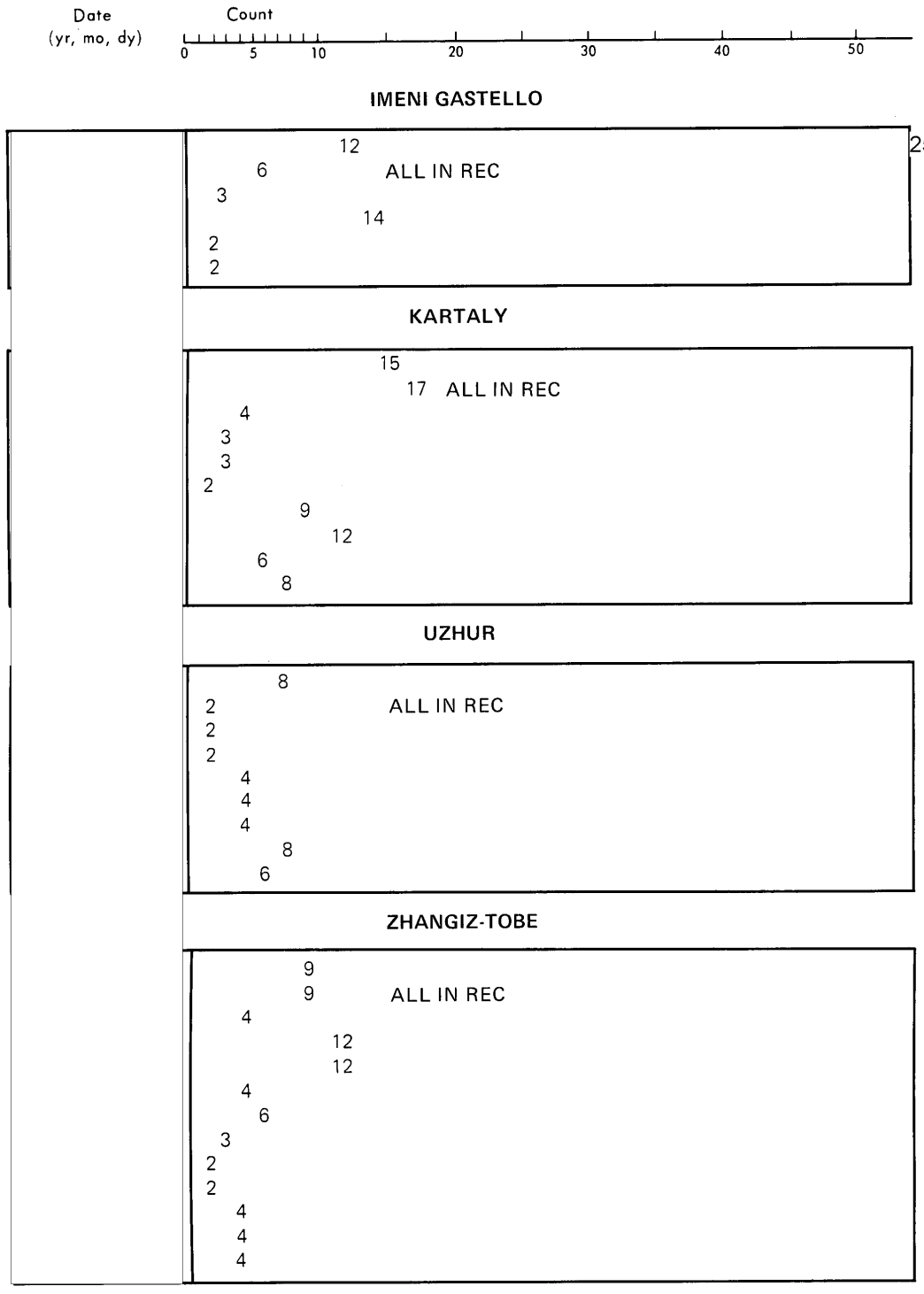


Table 35. SS-9 Silo Checkout Frame

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
ALEYSK	
1	RIM
7	"
7	"
7	"
1	"
1	"
7	"
7	"
7	"
2	GSE
7	RIM
8	RIM
12	RIM (9) GSE (3)
DOMBAROVSKIY	
2	RIM
[redacted]	
2	RIM (1) GSE (1)
3	GSE
3	"
3	"
3	"
4	"
9	"
9	"
9	"
9	"
IMENI GASTELLO	
5	GSE
5	"
5	"
5	"
UZHUR	
4	GSE
6	"
5	"
5	"
6	UNI

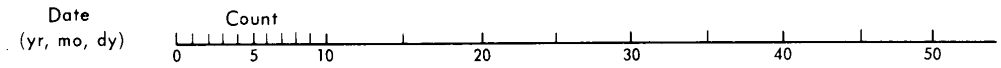
Table 35. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)	
KARTALY		
	1	RIM
	2	"
	7	"
	5	"
	4	"
	4	"
	4	"
	5	"
	8	"
	8	"
	10	RIM (9) GSE (1)
	5	RIM
	4	"
	4	"
	4	"
	5	"
	10	"
	10	"
	10	"
	10	RIM (9) GSE (1)
	5	RIM
	5	"
ZHANGIZ-TOBE		
	1	
	1	ALL IN GSE
	1	
	3	
	4	
	3	
	3	
	3	
	3	
	9	
	9	
	9	
	9	
	9	
	9	

25X1

25X1

Table 36. House Trailer



ALEYSK

1		RIM
		21 UNI (8) REC (13)
4		GEN
4		GEN
4		GEN
		24 GEN
3		GSE
3		GSE
1		GSE
	11	GEN
	11	GEN
5		GEN
		34 GSE (12) GEN (22)

IMENI GASTELLO

2		GEN
		22 GSE
	12	TRN
	12	TRN
		22 TRN
		22 TRN
		16 TRN (2) GSE (12) RIM (2)
		16 TRN (2) GSE (12) RIM (2)
6		GSE
		20 GSE (12) PRO (8)
	12	UNI
		27 TRN
		32 TRN

DOMBAROVSKIY

5		REC (1) PRO (4)
1		GSE
2		RIM
		22 GSE
	8	REC
		28 REC

KARTALY

3		RIM
4		GSE
1		GSE
1		GSE
		16 GSE (2) RIM (14)

UZHUR

5		GEN
5		GEN
2		GSE
5		GSE
	12	GSE (11) RIM (1)
		24 GSE (15) PRO (9)
		24 GSE (15) PRO (9)
		24 RIM (15) PRO (9)
	15	UNI (6) PRO (4) REC (2) GSE (3)

25X1

Table 36. (Continued)

Date (yr, mo, dy) | Count (0 5 10 20 30 40 50)

ZHANGIZ-TOBE

4	RIM (2) GSE (2)
4	RIM (2) GSE (2)
6	PRO (4) RIM (2)
6	PRO (4) RIM (2)
17	GSE (13) PRO (4)
4	PRO
4	PRO
6	PRO (4) RIM (2)
15	RIM (11) PRO (4)
15	RIM (11) PRO (4)
26	RIM (23) PRO (3)
5	RIM
7	RIM (4) PRO (3)
3	PRO
1	TRN
8	TRN
12	GSE
33	TRN (29) GEN (2) REC (2)

25X1

Table 37. Crane

ALEYSK

1	GSE
1	GEN
2	GSE (1) TRN (1)
4	RIM (2) PRO (1) UNI (1)
1	UNI
1	UNI

25X1

DOMBAROVSKIY

1	GSE
4	GSE (1) REC (3)

25X1

25X1

25X1

Table 37. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
IMENI GASTELLO	
	1 REC
	2 GSE (1) PRO (1)
	[redacted]
	11 RIM (10) GSE (1)
	4 GSE (2) UNI (2)
	2 PRO (2) UNI (2)
	1 PRO
	1 UNI
	5 PRO (4) REC (1)
	1 TRN
	[redacted]
KARTALY	
	[redacted]
	1 PRO
	[redacted]
	1 "
	1 "
	1 "
	1 "
	5 "
UZHUR	
	2 RIM (1) GSE (1)
	1 RIM
	[redacted]
	1 REC
ZHANGIZ-TOBE	
	[redacted]
	3 RIM (1) GSE (1)
	[redacted]

25X1

Next 4 Page(s) In Document Denied

SS-11

SS-11

57. The RTPs at the ten SS-11 ICBM complexes contain up to ten different areas or facilities. Nine of these ten complexes support two systems (eight have both the SS-7 and SS-11 and one has the SS-8 and SS-11) and are, therefore, more extensive in their layout than the complexes supporting only one missile system.

58. At the eight complexes where the SS-7 is jointly deployed with the SS-11, the original RTP contained a receiving area, a RIM facility, a propellant facility, a GSE maintenance area, and a general support area. Most of these facilities and areas were complete and supporting the complex as early as 1963-1964. From nine-to-13 months after the SS-11 silo construction program was introduced at the complex, five areas were added. These areas are the major SS-11 support areas and are a RIM facility, a propellant facility, a GSE maintenance area, and a single-silo training site. No nuclear facility has been constructed at the Teykovo complex. At some of the complexes a separate receiving area was added. At Kozelsk, where the SS-8 is jointly deployed with the SS-11, and Tatishchevo, where the SS-11 is exclusively deployed, an area of undetermined function was also added in the RTP. 25X1 25X1 25X1

59. More equipment is observed at the ten SS-11 complexes than at the five SS-7 or two SS-8 complexes. This level is somewhat less than that seen at the six SS-9 complexes. The reason for the higher level of equipment may simply be that more sites are present and therefore require more maintenance. Another reason may be that there is only one maintenance-type building per launch group and it can accommodate only limited repair work due to its small size. The garage space at these SS-11 RTPs has previously been determined to be sufficient to contain the normal amount of equipment required.

Drovyanaya

60. The RTP (Figure 3) supports six SS-7 launch sites (six soft and nine hard launchers) and 60 SS-11 single-silo sites. As with most of these SS-11 RTPs, missile rail cars are frequently observed. More activity has been observed at this training site than at any of the others. SS-11 missile canisters are usually seen in either the maintenance and shop area or at the training site. This complex is also one of four where warhead canisters have been observed in the RTP.

Gladkaya

61. This RTP supports three SS-7 launch sites (four soft and three hard launchers) and 50 SS-11 single-silo launch sites. Three of four sets of SS-7 stage transporters are normally observed between the GSE maintenance area and the general support area.

Kostroma

62. This RTP supports seven SS-7 launch sites (12 soft and three hard launchers) and 90 SS-11 single-silo launch sites. Little SS-7 equipment is seen in the RTP. Twenty-three missile rail cars have been present on one occasion, a high for the number of railcars observed in the SS-11 RTP, and about 20 on several other occasions. These rail cars may be awaiting maintenance in the nearby repair station.

Kozelsk

63. This RTP supports five SS-8 launch sites (six soft and six hard launchers) and 110 SS-11 single-silo launch sites. The major SS-11 areas are in a separate area. Both the propellant facility and RIM facility have their own receiving area. Highs of 16 propellant rail cars and 13 missile rail cars have been seen.

Olovyannaya

64. This RTP supports three SS-7 launch sites (nine hard launchers) and 90 SS-11 single-silo launch sites. The major SS-11 areas are in a separate area which is road connected to the original RTP. SS-7 stage transporters and missile transporters were frequently observed in the SS-11 RIM facility up to March 1969. They have not been seen with any regularity since then. The highest number of SS-11

25X1

warhead canisters seen at one time was 75 in March 1969. Then a shelter was built near the storage bunkers for these canisters.

Perm

65. This RTP supports six SS-7 launch sites (ten soft and three hard launchers) and 80 SS-11 single-silo launch sites. A drive-through building was recently added to the GSE maintenance area. No specific function can be determined. No unusually large amounts of equipment have been observed at the RTP.

Svobodnyy

66. The RTP supports eight SS-7 launch sites (14 soft and three hard launchers) and 60 SS-11 single-silo launch sites. SS-7 missile transporters have been observed most commonly in the propellant facility, while SS-7 stage transporters are observed most frequently in the SS-11 receiving area. This . Twenty-one missile rail cars were observed at this complex in August 1968. This was the second highest count of these rail cars at any of the 24 ICBM complexes.

Tatishchevo

67. Only SS-11 launch sites are deployed at this complex. Equipment is normally observed in the two receiving areas. There is also a full set of SS-11 GSE normally parked near the training building in the SS-11 training site. This equipment moves between the parking area and the silo apron.

Teykovo

68. The RTP supports six SS-7 launch sites (12 soft launchers) and 80 SS-11 single-silo launch sites. The SS-11 portion of this RTP still has two buildings under construction, although the RTP is considered to be actively supporting the complex's two missile systems. Propellant rail cars are frequently observed on the rail spur in the propellant facility. SS-7 stage transporters are normally parked near two buildings in the GSE maintenance area. No nuclear warhead facility has been identified at the RTP or centrally located within the complex. The operation normally done at this facility may be handled at one or more of the SS-7 on-site warhead areas.

Yedrovo

69. This RTP supports eight SS-7 launch sites (12 soft and six hard launchers) and 110 SS-11 single-silo launch sites. A drive-through building similar to the one at Perm is in the GSE maintenance area.

25X1
25X1
25X1
25X1

Table 40. SS-7 Missile Transporter

Date (yr, mo, dy)	Count	
DROVYANAYA		
1		RIM
5		"
GLADKAYA		
1		RIM
KOSTROMA		
1		RIM
4		"
OLOVYANNAYA		
1		RIM
PERM		
3		GSE
1		"
SVOBODNYY		
1		REC
1		REC
7		PRO
7		"
11		"
TEYKOVO		
1		RIM

Table 41. SS-8 Missile Transporter

KOZELSK	
5	
3	ALL IN GSE
2	
4	
5	
6	
6	
6	
3	
3	
2	
2	

Table 42. SS-11 Missile Transporter

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
DROVYANAYA	
	1 RIM
	1 "
	1 MSA
	1 "
	1 TRN
	1 MSA
	1 TRN
	1 "
	1 "
GLADKAYA	
	2 GSE
	3 RIM
	3 "
	1 "
KOSTROMA	
	2 REC
	4 RIM
	3 "
	4 "
	3 "
	3 "
	3 "
	3 "
	3 "
	3 "
	4 "
	4 "
	5 "
	2 "
	4 "
	4 "
KOZELSK	
	2 GSE
	1 GSE
	1 RIM
	2 GSE
	2 RIM
	2 RIM
	3 RIM (1) GSE (2)
	2 RIM
	5 RIM (2) GSE (3)
	1 RIM
	2 "
	3 "
	2 "
	2 "
	2 "

25X1

Table 42. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)	
OLOVYANNAYA		
	2	RIM
	4	"
	1	"
	6	"
	5	"
	5	"
	6	"
	6	"
	2	RIM (1) TRN (1)
	2	RIM (2) TRN (1)
	3	RIM
	6	RIM
	6	"
	6	"
	1	"
	3	"
	1	"
PERM		
	1	TRN
	2	"
	1	GSE
	2	TRN (1) GSE (1)
SVOBODNYY		
	5	REC
	2	RIM
	3	RIM (1) PRO (2)
	3	RIM (1) PRO (2)
	1	REC
	1	REC
	1	REC
	1	REC
	2	RIM
	1	REC
	5	RIM
	2	RIM
TATISHCHEVO		
	3	RIM
	5	PRO (1) TRN (2) RIM (2)
	2	TRN
	5	RIM (3) TRN (2)
	5	RIM (3) TRN (2)
	5	RIM (2) TRN (3)
	5	RIM (3) TRN (2)
	6	RIM (4) TRN (2)
	6	RIM (3) TRN (3)
	3	TRN
	3	RIM
	5	RIM (3) TRN (2)
	3	RIM

25X1

Table 42. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
TEYKOVO	
	25X1
3	RIM (2) GSE (1)
2	GSE
	GSE
YEDROVO	
5	GSE
	TRN
	RIM

Table 43. SS-7 First-Stage Transporter

DROVYANAYA	
2	SS-11 MSA
2	RIM
2	SS-11 MSA
2	"
2	"
2	"
2	"
1	"
2	"
2	"
1	"
1	"
1	"
1	"
GLADKAYA	
2	RIM
4	"
3	"
1	SS-11 RIM
2	GSE
3	"
3	"
4	"
	SS-11 RIM
3	GSE
OLOVYANNAYA	
3	
3	ALL IN SS-11 RIM
3	
3	
2	
2	
2	
5	
5	
5	
4	
2	

25X1

25X1

Table 43. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
PERM	
25X1	
	2 GSE
	2 "
	3 "
	3 "
	5 GSE (3) REC (2)
	2 GSE
	3 "
	3 "
	7 RIM
	3 GSE
	3 "
	6 "
	5 "
	6 RIM
	5 GSE (4) PRO (1)
	1 REC
	2 SS-11 GSE (1) REC (1)
SVOBODNYY	
	4 GSE
	3 SS-11 REC
	4 "
	5 "
	3 "
	3 "
	1 "
	1 "
	1 REC
	3 SS-11 REC
TEYKOVO	
	3 GSE
	4 SS-11 GSE
	4 "
	4 "
YEDROVO	
	1 RIM

25X1

25X1

Table 44. SS-7 Second-Stage Transporter

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
DROVYANAYA	
2	SS-11 MSA
	RIM
5	RIM (3) SS-11 MSA (2)
2	SS-11 RIM
2	SS-11 MSA (1) SS-11 RIM (1)
	RIM
2	RIM (1) SS-11 RIM (1)
2	SS-11 RIM
	"
2	"
2	"
2	"
GLADKAYA	
3	RIM
4	"
4	"
2	GSE
3	"
3	"
5	"
5	SS-11 RIM
3	GSE
OLOVYANNAYA	
4	
4	ALL IN SS-11 RIM
4	
4	
3	
3	
3	
3	
3	
4	
2	
PERM	
3	GSE
3	"
3	"
3	"
3	"
3	RIM
3	GSE
3	"
5	"
5	"
5	RIM
5	SS-11 GSE
	REC
	REC

25X1

Table 44. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
SVOBODNYY	
25X1	
2	GSE
3	SS-11 REC
4	"
4	"
3	"
3	"
3	"
1	"
1	REC
1	SS-11 REC
TEYKOVO	
2	GSE (1) RIM (1)
4	SS-11 GSE
4	"
4	"

Table 45. SS-7 Silo Loader

DROVYANAYA	
2	SS-11 RIM
2	SS-11 RIM
KOSTROMA	
1	RIM
OLOVYANNAYA	
2	SS-11 RIM
3	RIM (2) SS-11 RIM (1)
2	RIM (1) SS-11 RIM (1)
2	SS-11 RIM
2	"
1	"
2	"
2	"
2	"
2	"
1	"
2	"
2	"
SVOBODNYY	
1	RIM

25X1

Table 46. SS-11 Silo Loader

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
DROVYANAYA	
2	RIM
1	TRN
2	RIM
3	TRN (1) MSA (1) RIM (1)
GLADKAYA	
1	GSE
5	RIM (2) GSE (3)
5	RIM (2) GSE (3)
KOZELSK	
2	GSE
2	VEM
2	GSE
2	RIM
2	GSE
OLOVYANNAYA	
1	RIM
2	"
1	"
3	"
3	"
3	"
3	"
1	TRN
3	RIM
3	"
2	"
1	"
PERM	
2	GSE (1) TRN (1)
4	GSE (2) TRN (2)
1	TRN
SVOBODNYY	
1	RIM
TATISHCHEVO	
1	RIM
1	TRN
1	"
1	"
1	"
YEDROVO	
1	TRN

Table 47. SS-7 Hoisting Fixtures

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)	
DROVYANAYA		
	1	
	4	ALL IN SS-11 RIM
	4	
	4	
OLOVYANNAYA		
	1	
	1	ALL IN SS-11 RIM
	1	
	1	
PERM		
	2	
	3	ALL IN SS-11 RIM
	2	
	4	
SVOBODNYY		
	2	REC
TEYKOVO		
	1	REC

25X1

Table 48. SS-8 Hoisting Fixture

KOZELSK		
	1	REC

Table 49. SS-7 Propellant Transporter

KOSTROMA		
	2	PRO
	2	PRO
	7	PRO
PERM		
	1	RIM
SVOBODNYY		
	2	PRO
	2	PRO
	8	PRO
	10	PRO
	8	PRO (4) RIM (4)
	4	PRO
YEDROVO		
	2	RIM (1) GSE (1)

25X1

Table 50. SS-8 Propellant Transporter

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
KOZELSK	
	4
	1 ALL IN SS-8 REC

25X1

Table 51. SS-11 Propellant Transporter

DROVYANAYA	
	5 PRO
	2 GSE
	2 "
	2 "
	2 "
	2 "
	2 "
	2 "
	2 "
	2 "
	2 "
	2 "
	2 "
	2 "
	2 "
GLADKAYA	
	15 PRO
	5 REC
KOSTROMA	
	9
	2 ALL IN PRO
	5
	6
	6
	6
	3
KOZELSK	
	6 VEM
	6 VEM
	8 PRO
	7 "
	6 "
	6 "
	6 "
	9 "
	2 "
	6 "
	6 "
	6 "
	7 "
	4 "
	7 "
	6 "

25X1

25X1

Table 51. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
OLOVYANAYA	
	3 GSE
PERM	
	2 RIM 1 PRO
SVOBODNYY	
	4 PRO 4 PRO 4 PRO
TATISHCHEVO	
	3 TNG 4 TNG (3) PRO (1) 5 TNG (3) PRO (1) 1 PRO 6 TNG (5) RIM (1)
TEYKOVO	
	1 GSE
YEDROVO	
	1 GSE

Table 52. SS-7 Oxidizer Transporter

DROVYANAYA	
	4 PRO 1 SS-11 GSE 2 PRO
GLADKAYA	
	5 PRO
OLOVYANNAYA	
	6 PRO GSE

25X1

25X1

25X1

Table 52. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
PERM	
1	PRO
1	PRO
1	GSE
1	GSE
1	GSE
1	PRO
3	GSE (2) PRO (1)
1	PRO
4	"
1	"
1	"
SVOBODNYY	
5	PRO
2	"
2	"
2	"
2	"
5	PRO (3) GSE (2)
TEYKOVO	
1	GSE
7	PRO (6) GSE (1)
4	GSE
4	GSE
4	GSE
YEDROVO	
9	
1	ALL IN PRO
1	
2	

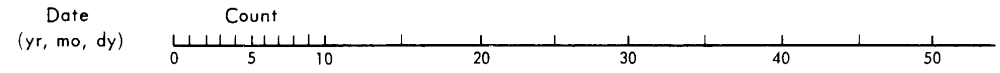
Table 53. SS-11 Oxidizer Transporter

DROVYANAYA	
1	SS-7 PRO
1	GSE
GLADKAYA	
1	
1	ALL IN PRO
1	
KOSTROMA	
3	
1	ALL IN PRO
2	
2	
2	

25X1

25X1

Table 53. (Continued)



KOZELSK

6	
6	ALL IN PRO

OLOVYANAYA

1	
2	ALL IN PRO
3	

PERM

1	GSE

SVOBODNYY

4	PRO
6	"
4	"
4	"
2	RIM
4	RIM
4	PRO
2	"
4	"
2	"
4	"
4	"
4	"
2	"
2	"

TATISHCHEVO

2	GSE
3	GSE (2) PRO (1)
3	GSE
2	TNG
4	TNG (2) PRO (2)
2	TNG
2	TNG
2	TNG

TEYKOVO

3	GSE
6	REC
3	GSE
4	GSE
4	GSE
4	GSE

YEDROVO

2	TNG
2	PRO
3	TNG (2) GSE (1)
2	PRO
1	PRO

25X1

Table 54 SS-7 Fuel Transporter

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
DROVYANAYA	
1	PRO
GLADKAYA	
10	PRO (8) GSE (2)
7	GSE
OLOVYANNAYA	
9	PRO
2	"
4	"
3	"
4	"
5	"
5	"
7	"
7	"
3	GSE
4	GSE
5	PRO
6	PRO
PERM	
1	
6	ALL IN PRO
2	
4	
SVOBODNYY	
6	PRO
4	"
3	"
6	"
6	"
9	"
11	"
4	SS-11 PRO
4	SS-11 PRO
4	SS-11 PRO
4	SS-11 PRO
4	SS-11 PRO
TEYKOVO	
1	GSE
6	PRO
3	GSE
5	GSE
5	GSE
YEDROVO	
5	SS-11 GSE
5	SS-11 GSE
1	RIM

25X1

Table 55. SS-8 Fuel Transporter

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)	
KOZELSK		
	6	
	6	ALL IN SS-8 REC
	6	
	6	
	5	
	6	
	6	
	6	
	6	
	5	
	6	
	3	
	6	
	6	
	6	
	7	
	7	

25X1

Table 56. SS-11 Fuel Transporter

DROVYANAYA		
1		SS-7 PRO
1		GSE
	2	PRO
1		PRO
GLADKAYA		
	6	REC
	2	REC
KOSTROMA		
	2	GSE
	2	PRO
1		"
1		"
	2	"
KOZELSK		
	6	PRO
	2	GEN
	2	GEN
OLOVYANAYA		
1		
1		ALL IN PRO
	4	
	4	

25X1

25X1

Table 56. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
PERM	
3	
2	ALL IN GSE
2	
SVOBODNYY	
2	PRO
3	PRO
2	RIM
2	PRO
2	PRO
4	PRO
4	PRO (2) GSE (2)
TATISHCHEVO	
2	GSE
1	GSE
1	GSE
1	GSE
1	TRN
2	TRN (1) PRO (1)
3	TRN (1) PRO (2)
2	TRN (1) PRO (1)
3	TRN (1) PRO (2)
TEYKOVO	
6	
4	ALL IN GSE
5	
4	
4	
YEDROVO	
2	GSE
1	PRO
1	GSE
2	GSE

Table 57. Propellant Rail Car

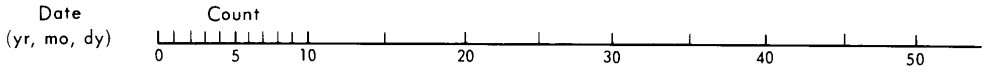
DROVYANAYA	
4	REC
11	REC
GLADKAYA	
6	REC
KOZELSK	
4	REC
1	REC
1	REC

25X1

25X1

25X1

Table 57. (Continued)



OLOVYANAYA

3	REC

25X1

PERM

2	REC

TEYKOVO

9	REC

Table 58. Oxidizer Rail Car

DROVYANAYA

4	REC

GLADKAYA

1	REC

KOSTROMA

4	REC

KOZELSK

6 4 6 6 3 4 3 2 2 7 7 10	ALL IN REC

OLOVYANNAYA

6 4 4 4 4 4 4	ALL IN REC

SVOBODNYY

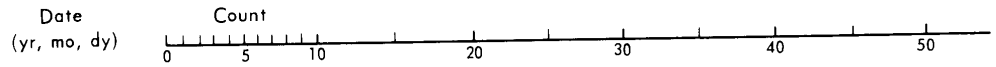
10	REC

25X1

25X1

25X1

Table 58. (Continued)



TATISHCHEVO

25X1

6
6 ALL IN REC
4
4
2
7
7

TEYKOVO

3
7
3
3
2
2
2
2

YEDROVO

6
3
4
1
5
5
1
6
6

Table 59. Fuel Rail Car

GLADKAYA

1
3 ALL IN REC
1

KOSTROMA

3 REC

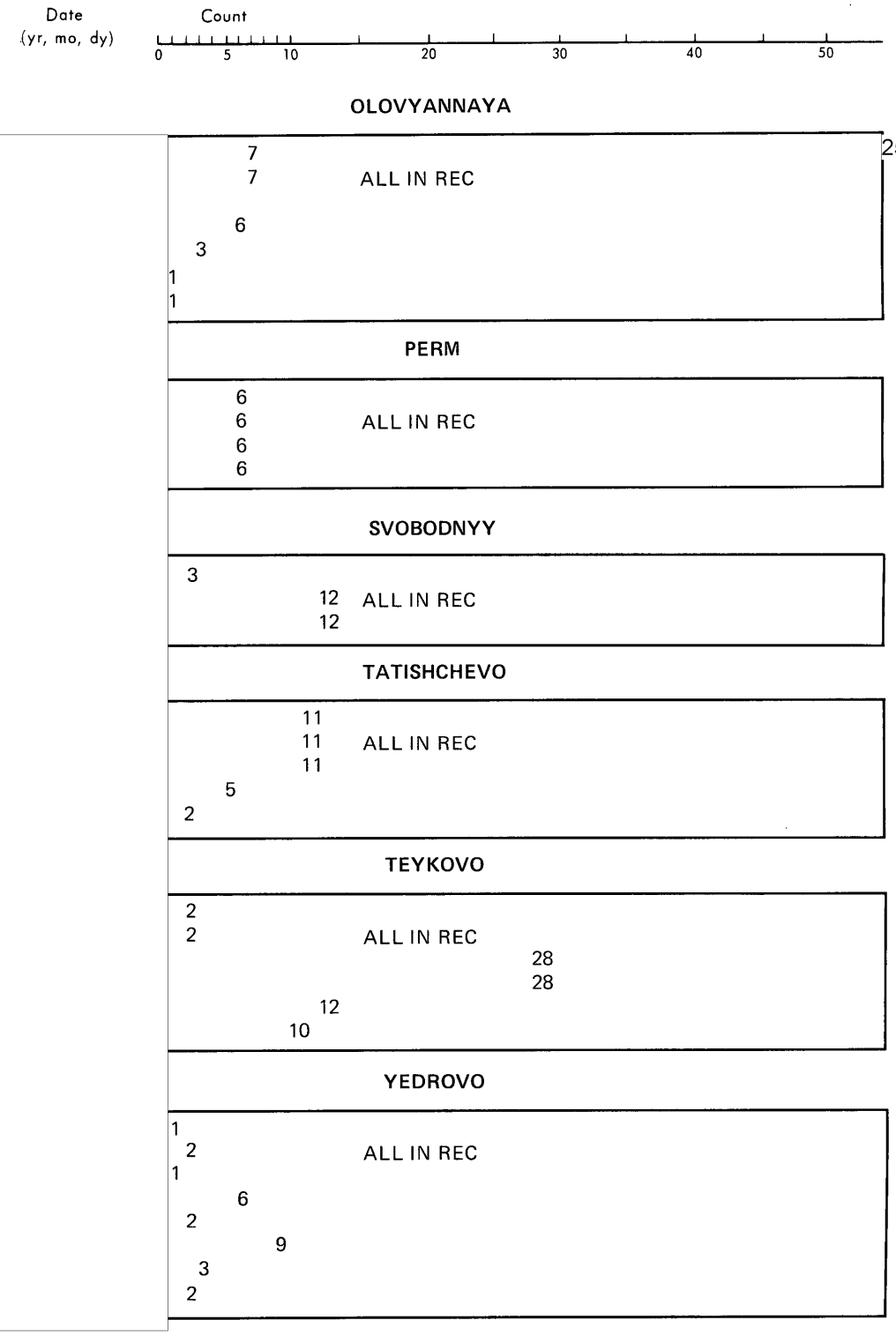
KOZELSK

3
3 ALL IN REC
3

25X1

25X1

Table 59. (Continued)

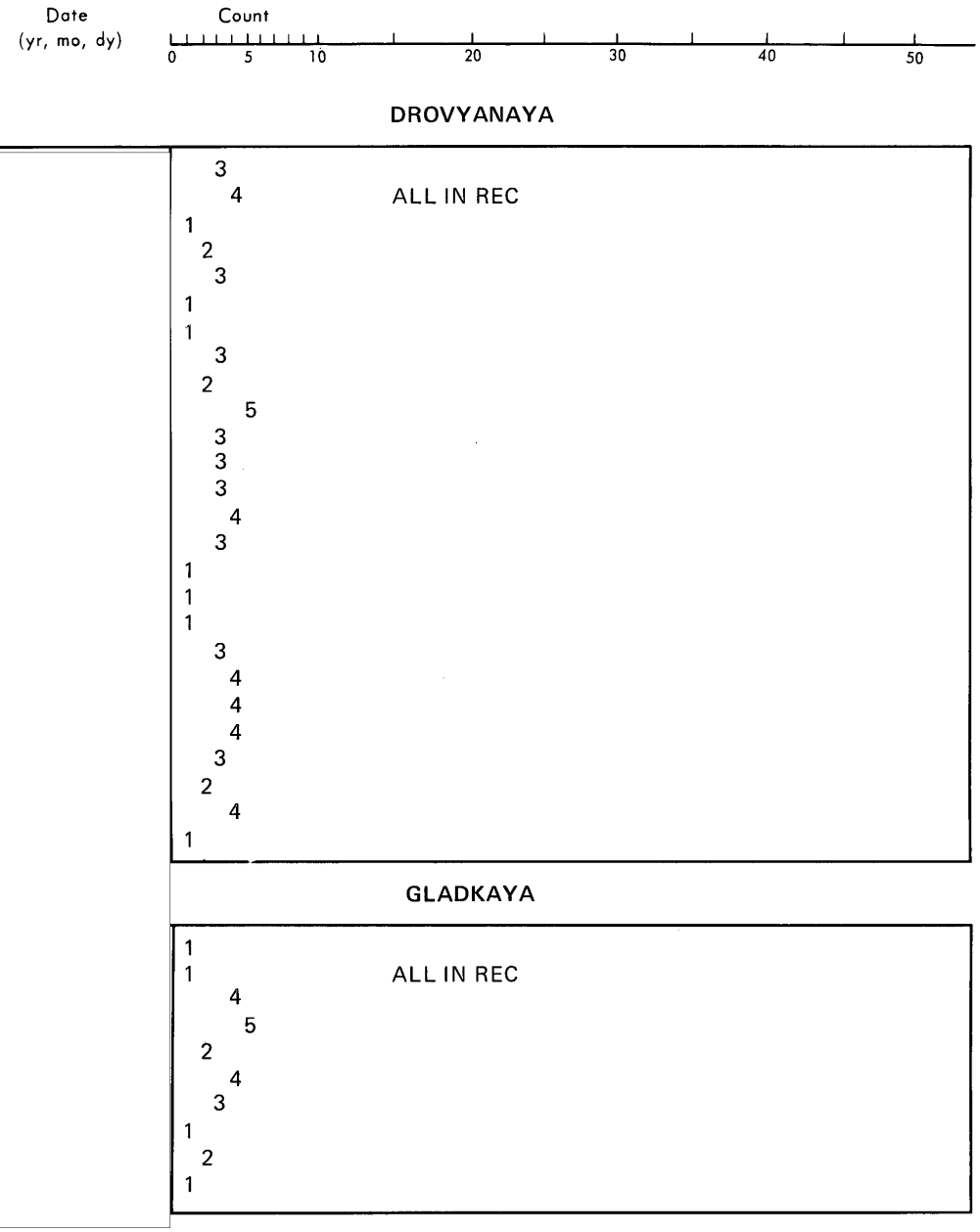


25X1

25X1

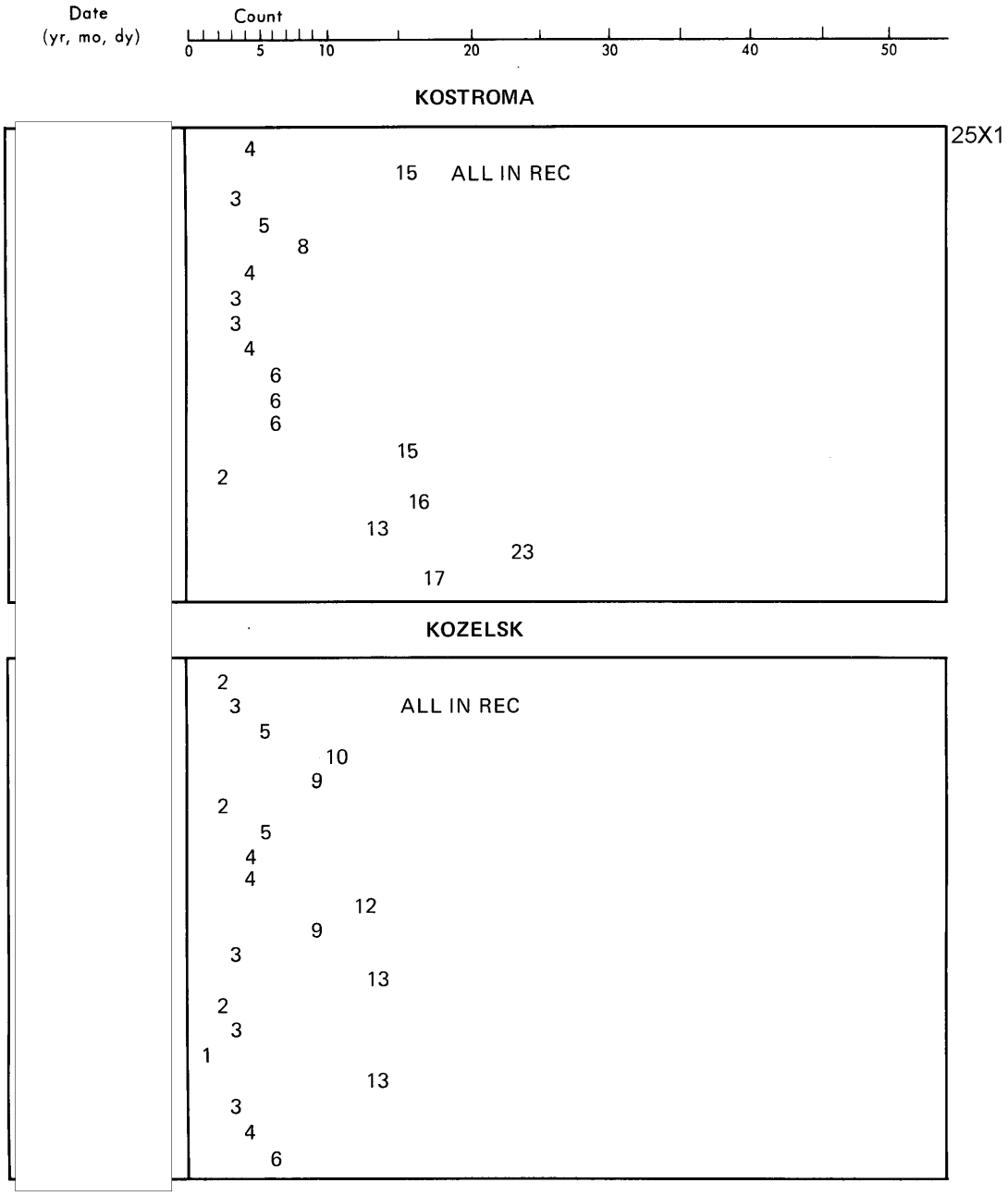
25X1

Table 60. Missile Rail Car



25X1

Table 60. (Continued)



25X1

Table 60. (Continued)

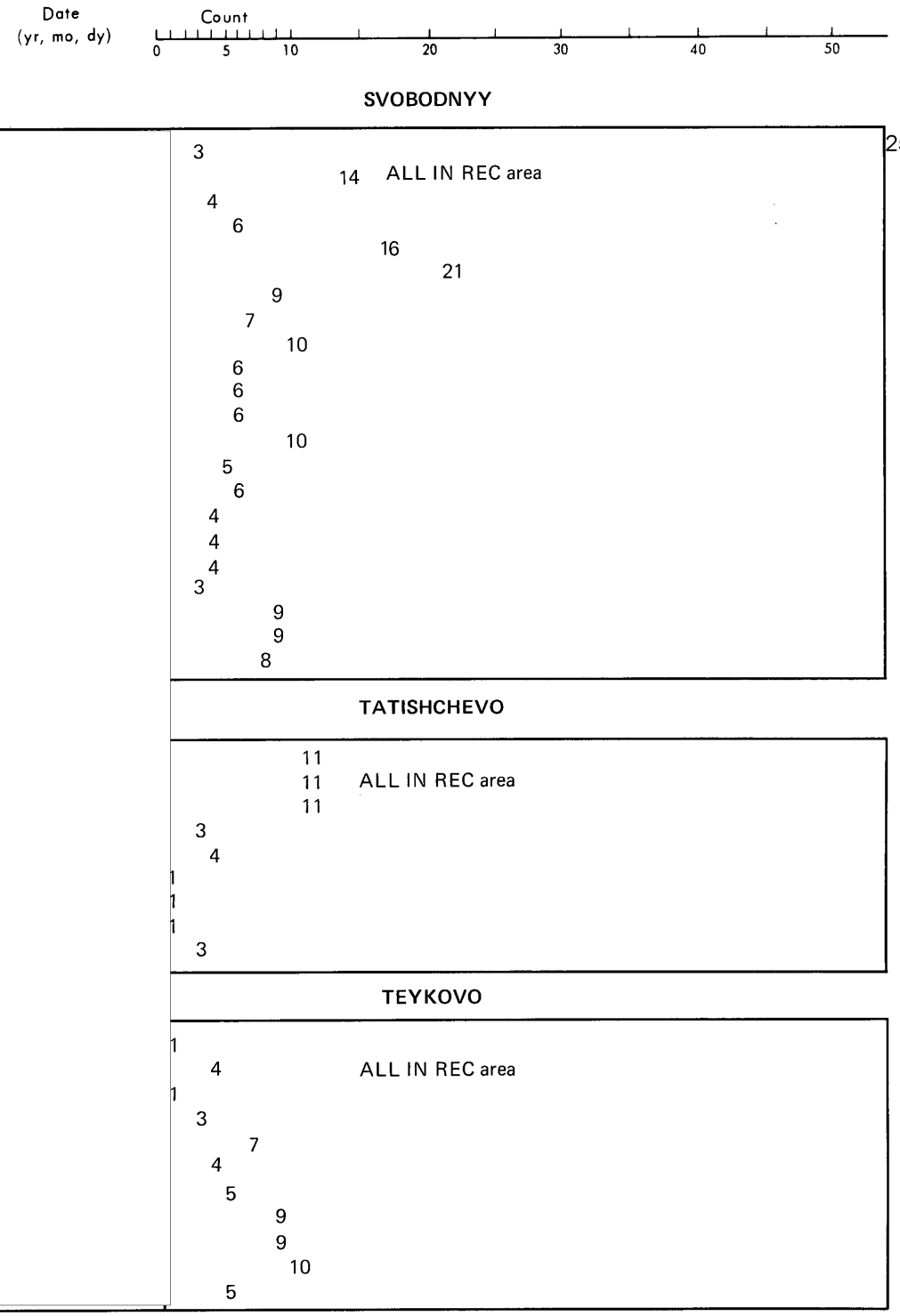
Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
OLOVYANNAYA	
	3
	9
	10
	11
	2
	3
	3
	2
	6
	6
	4
	4
	2
	4
	5
	9
	4
	3
	2
	1
	3
	4
	5
	2
PERM	
	2
	2
	6
	6
	6
	6
	1
	2
	2
	2
	3
	5
	5
	8
	3
	3

ALL IN REC area

ALL IN REC area

25X1

Table 60. (Continued)



25X1

Table 60. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
YEDROVO	
	1
	15 ALL IN REC
	4
	13
	15
	8
	17
	16
	3
	5
	16
	6
	16
	3
	3

25X1

Table 61. SS-8 Liquid Oxygen Rail Car

KOZELSK	
	4
	5 ALL IN REC
	3
	3
	3
	3
	4
	4
	4
	4
	4
	5
	12
	3
	5
	7
	7
	7

25X1

25X1

Table 62. House Trailer

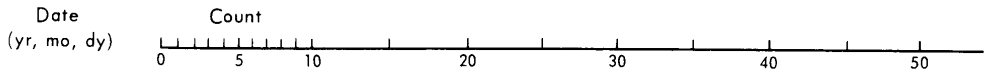
Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
DROVYANAYA	
	2 MSA
	1 MSA
	10 MSA (1) REC (5) RIM (2) SS-7 RIM (2)
	4 MSA
	6 MSA (3) RIM (3)
	6 MSA (3) RIM (3)
	8 MSA (4) GSE (1) REC (3)
	7 REC (3) MSA (3) GSE (1)
	6 GSE (1) MSA (2) REC (3)
	5 RIM (2) MSA (2) SS-7 RIM (1)
	5 RIM (1) MSA (3) SS-7 RIM (1)
	7 RIM (1) MSA (4) SS-7 RIM (2)
	7 MSA (4) RIM (1) SS-7 RIM (2)
	12 MSA (1) RIM (4) SS-7 RIM (7)
	1 MSA
	5 RIM (3) MSA (2)
	18 MSA (2) REC (3) SS-7 RIM (6) RIM (7)
	13 MSA (7) RIM (6)
	14 MSA (2) RIM (12)
	10 RIM
	14 MSA (2) RIM (2)
	3 MSA
	15 MSA (9) RIM (6)
GLADKAYA	
	4 GSE (3) SS-7 RIM (1)
	12 GSE
	9 GSE (4) SS-7 RIM (5)
	8 GSE (4) SS-7 RIM (4)
	2 RIM
	1 SS-7 RIM (1)
	5 REC (3) RIM (2)
	2 RIM
	3 REC
	9 GSE (3) RIM (5) SS-7 RIM (1)
	14 GSE (6) RIM (4) MSA (4)
	14 RIM (10) MSA (4)
	14 GSE (9) RIM (4) PRO (1)
KOSTROMA	
	4 GSE
	2 REC
	10 RIM (5) GSE (5)
	15 GSE (10) RIM (5)

25X1

Table 62. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
KOZELSK	
	4 GSE
	4 "
	4 "
	4 "
	4 "
	4 "
	4 "
	7 GSE (4) VEM (3)
	4 GSE
	6 GSE
	4 GSE
	GSE (4) RIM (3) SS-8 REC (1)
	4 GSE
	23 GSE (11) RIM (8) VEM (4)
	33 GSE (16) RIM (13)
	18 SS-8 GSE VEM (4)
OLOVYANNAYA	
	10 SS-7 RIM (10)
	2 GSE (2)
	2 GSE (2)
	11 GSE (8) RIM (3)
	11 GSE (8) RIM (3)
	9 SS-7 GSE (7) RIM (2)
	5 GSE (5)
	10 SS-7 GSE (7) SS-7 RIM (1) RIM (2)
	3 GSE (3)
	1 SS-7 RIM (1)
	7 GSE (6) SS-7 RIM (1)
	5 GSE (5)
	24 GSE (5) RIM (6) PRO (5) TRN (8)
	8 SS-7 RIM (1) PRO (7)
PERM	
	4 REC
	4 REC
	[redacted] 25X1
	2 PRO
	2 RIM
SVOBODNYY	
	1 RIM
	3 GEN
	3 GEN
	2 SS-7 PRO
	6 "
	6 "
	6 "
	6 "
	6 "
	6 "

Table 62. (Continued)



TATISHCHEVO

25X1

6		RIM
	13	RIM (5) REC (7) UNI (1)
8		REC (7) UNI (1)
6		RIM (4) UNI (2)
	12	RIM (6) SS-7 RIM (1) REC (5)
9		RIM (4) REC (5)
	12	RIM (6) UNI (6)
	11	UNI
9		RIM (2) REC (7)
	14	REC
10		RIM (3) REC (7)
2		RIM (1) UNI (1)
6		REC
6		REC

TEYKOVO

5		RIM
	13	SS-7 GSE
6		GSE
3		GSE
	17	GSE (11) RIM (6)
5		RIM (5)
5		RIM (5)
8		GSE (2) RIM (6)

YEDROVO

1		GSE
1		RIM
3		RIM (2) GSE (1)
1		SS-7 RIM
4		GSE (2) RIM (2)
5		RIM

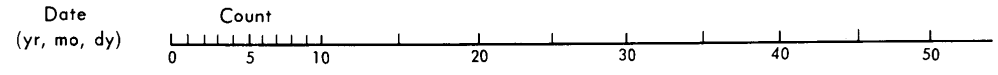
25X1

Table 63. Crane

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
DROVYANAYA	
[redacted]	25X1
1	MSA
[redacted]	25X1
1	MSA
[redacted]	25X1
1	MSA
1	MSA
2	MSA, GSE
2	MSA, TRN
1	MSA
1	MSA
1	MSA
1	MSA
3	MSA (1) REC
1	MSA
3	MSA (1) RIM
1	MSA
2	MSA (1) GSE
1	MSA
GLADKAYA	
[redacted]	25X1
1	RIM
[redacted]	25X1
1	RIM
1	PRO
KOSTROMA	
2	SS-7 RIM (1) PRO (1)
1	RIM
3	RIM (1) PRO (2)
[redacted]	25X1
3	RIM (1) GSE (2)
1	SS-7 RIM
3	SS-7 RIM
[redacted]	25X1
KOZELSK	
1	SS-8 REC
3	GSE
3	GSE
[redacted]	25X1
1	SS-8 REC
[redacted]	25X1
1	REC
1	GSE

25X1

Table 63. (Continued)



OLOVYANNAYA

1	SS-7 RIM	25X1
		25X1

PERM

1	REC	
1	REC	
1	TRN	
1	REC	
		25X1
1	TRN	
1	GSE	
2	GSE (1) RIM (1)	
		25X1
1	GSE	

25X1

25X1

Table 63. (Continued)

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
SVOBODNYY	
	1 GSE
	3 RIM (1) REC (1) GEN (1)
	1 SS-7
	1 RIM
	2 REC (1) GSE (1)
	2 REC (1) SS-7 PRO (1)
	1 REC
	3 SS-7 RIM (1) REC (1) GSE (1)
	1 REC
	2 SS-7 PRO (1) REC (1)
	1 SS-7 PRO
	2 REC (1) SS-7 RIM (1)
TATISHCHEVO	
	25X1
	1 REC
	1 GSE
	25X1
	2 TRN (1) RIM (1)
	3 RIM (2) TRN (1)
	3 RIM
TEYKOVO	
	2 SS-7 GSE (1) SS-7 RIM (1)
	1 SS-7 CSA
	1 GSE
	2 REC (1) GSE (1)
	2 RIM (1) REC (1)
	1 REC
	1 TRN
	1 TRN
YEDROVO	
	3 REC (1) GSE (2)
	5 SS-7 RIM (3) REC (1) TRN (1)

Table 64. Warhead Van

25X1

25X1

25X1

Table 64. (Continued)

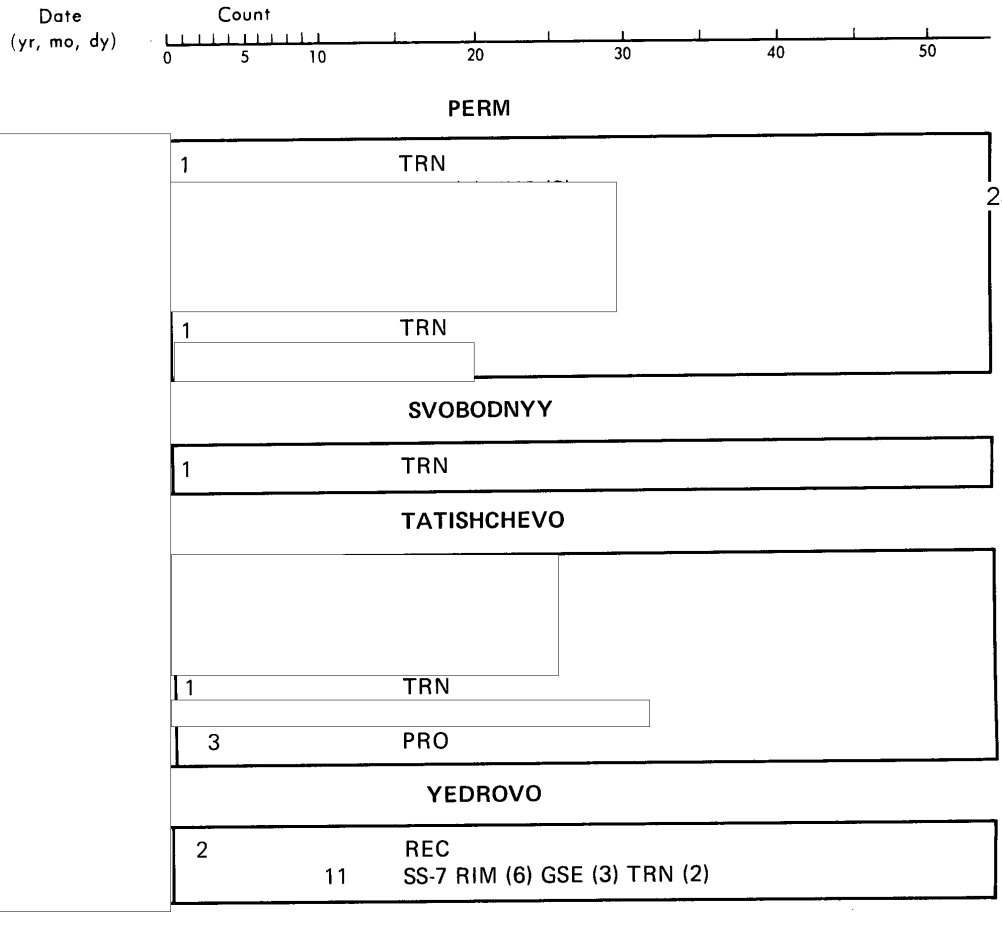
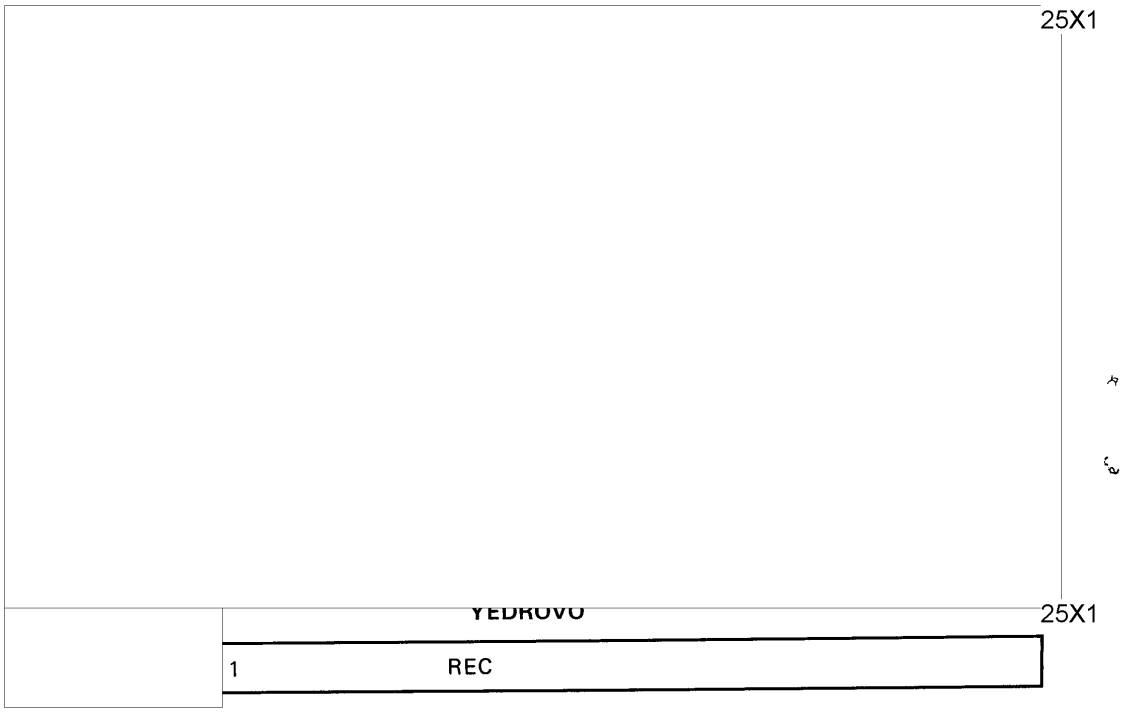


Table 65. Warhead Canister



25X1

SS-11s at MR/IRBM COMPLEXES

SS-11s at MR/IRBM Complexes

70. The SS-11 missile was introduced at two MR/IRBM complexes in the summer of 1968. This deployment consisted of six groups of launch sites at each complex. An RTP for the SS-11 missiles at these complexes was started within a year after the silo construction program had started. This construction sequence is consistent with that observed at the ten SS-11 ICBM complexes.

71. The SS-11 RTP at each of these complexes is separated from the one supporting the other missile system deployed at the complex. Neither SS-11 RTP at these two complexes contains as many functional areas or structures as those RTPs supporting the ten SS-11 ICBM complexes. However, construction is still under way and more areas are being added. To date, each of these RTPs contains at least a receiving area and a propellant facility.

Derazhnya

72. This RTP supports 60 SS-11 single-silo launch sites. By January 1972 the receiving area and propellant facility had been completed. An SS-11 single-silo training site, normally located at the RTP, was identified in July 1971 about 2.5 nm north of the RTP near an existing SS-4 launch site. Facilities or areas normally found at SS-11 RTPs, such as a RIM facility, a GSE maintenance area, and a nuclear warhead handling facility have not been identified at this RTP. These functions are probably performed at existing SS-4 facilities.

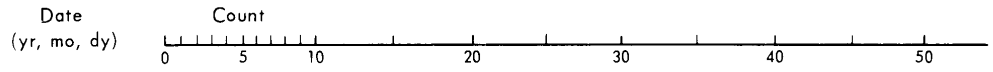
73. Missile handling equipment such as missile transporters and silo loaders are normally seen in the receiving area.

Pervomaysk

74. This RTP also supports 60 SS-11 single-silo launch sites. It consists of a receiving area, a propellant facility, a general support area, and a training site. No RIM or nuclear warhead handling facilities are present. These functions may be performed at similar facilities at the SS-5 launch site closest to the RTP.

75. Rail cars are normally present near the loop road of the receiving area. Fifteen missile rail cars were present in November 1969 and 14 were present in August 1970. These high counts may correlate with the completion of the first three launch groups.

Table 66. SS-11 Missile Transporter



DERAZHNYA

4	REC
3	REC
1	REC

PERVOMAYSK

8	REC
6	REC
4	REC
1	REC
3	REC

Table 67. SS-11 Silo Loader

DERAZHNYA

1	TRN

PERVOMAYSK

1	REC
2	REC

Table 68. Oxidizer Transporter

PERVOMAYSK

2	PRO

Table 69. Fuel Transporter

PERVOMAYSK

1	PRO
3	PRO
2	PRO

Table 70. Propellant Rail Car

PERVOMAYSK

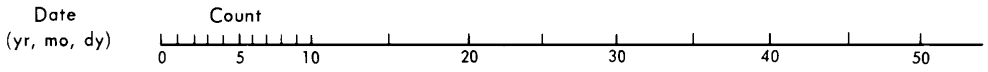
14	PRO

Table 71. Oxidizer Rail Car

DERAZHNYA

1	REC
1	"
1	"
1	"

Table 71. (Continued)



PERVOMAYSK

10	PRO	
5	PRO	
5	PRO	

25X1

Table 72. Fuel Rail Car

PERVOMAYSK

4

Table 73. Missile Rail Car

DERAZHNYA

3
8
3
7

PERVOMAYSK

	14	REC
	15	REC
2		REC
	17	REC (5) MSA (5) PRO (7)
	14	PRO

25X1

SS-13 ICBM System

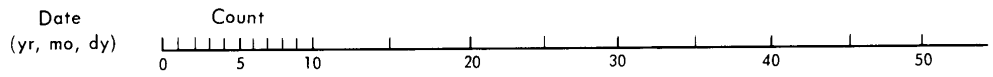
76. The SS-13 missile continues to be the Soviets' only deployed solid-propellant ICBM. This system is deployed at only one complex, Yoshkar-Ola. The complex also supports the SS-7 system.

77. The RTP for the SS-7 at Yoshkar-Ola is similar to most of the other ones for this system. It contains a receiving area, a propellant facility, a RIM facility, a general support area, a GSE maintenance area, and a maintenance support area. Missile rail cars are frequently observed at this RTP. SS-7 stage transporters and propellant transporters are observed adjacent to the large garage in the SS-7 maintenance area. This equipment appears to be in permanent storage and is not included in this study.

78. Construction began for the SS-13 portion of this RTP in early-to-mid-1968 and was still partially underway when last observed in September 1971. Most of the facilities and areas for support of this system were constructed in a separate area. These include the RIM facility, a maintenance support area, a general support area, a single-silo training site, and a unique area for the SS-13, a component storage area. Little, if any equipment has been seen in these areas.

79. The SS-7 GSE maintenance area was expanded from four to seven garages and this area is used to support both missile systems. SS-13 silo loaders were first observed in this area in June 1968. The receiving area is also jointly used. A GSE training site has been constructed adjacent to the SS-7 propellant facility. Silo loaders have also been observed within this area.

Table 74. SS-7 Missile Transporter



YOSHKAR-OLA

2	REC
2	REC

Table 75. SS-7 First-Stage Missile Transporter

YOSHKAR-OLA

3	GSE

Table 76. SS-7 Second-Stage Missile Transporter

YOSHKAR-OLA

3	GSE

Table 77. SS-13 Silo Loader

YOSHKAR-OLA

4	RIM (3) GSE (1)
2	GSE
4	"
4	"
3	"
4	"
4	"
3	RIM (1) GSE (2)
2	GSE
4	GSE

Table 78. SS-7 Propellant Transporter

YOSHKAR-OLA

1	GEN
6	RIM
4	RIM

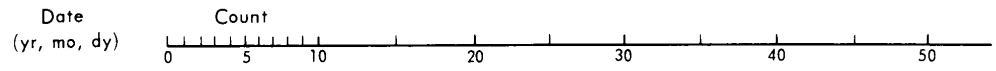
Table 79. SS-7 Oxidizer Transporter

YOSHKAR-OLA

4	MAT (3) REC (1)
2	MAT
2	MAT

25X1

Table 80. SS-7 Fuel Transporter



YOSHKAR-OLA

1	REC
1	PRO
1	REC

25X1

Table 81. Propellant Rail Car

YOSHKAR-OLA

7	REC

Table 82. Fuel Rail Car

YOSHKAR-OLA

1	REC

Table 83. Missile Rail Car

YOSHKAR-OLA

3	
4	ALL IN REC
1	
1	
1	
4	
6	
4	
1	
2	
2	

Table 84. House Trailer

YOSHKAR-OLA

1	SS-7 RIM
2	SS-7 RIM
3	SS-7 RIM
2	SS-7 GSE
5	SS-7 GSE (1) GSE (1) SS-7 RIM (3)
12	GSE (1) SS-7 RIM (2) REC (9)
5	GSE (2) REC (3)

25X1

25X1

Table 85. Crane

Date (yr, mo, dy)	Count (0 5 10 20 30 40 50)
YOSHKAR-OLA	
	25X1
1	SS-7 GSE
1	SS-7 GSE
1	REC
3	SS-7 RIM (1) MAT (2)
4	SS-7 RIM (1) SS-7 GSE (2) REC (1)
1	REC
4	SS-7 GSE (1) MAT (3)
1	GST
2	REC
1	REC

25X1

REFERENCES

25X1

DOCUMENTS

1. NPIC. , PIN 018/71, *Small Canisters at Aleysk ICBM Complex, USSR*, Mar 71 (TOP SECRET RUFF) 25X1

25X1

RELATED DOCUMENTS

NPIC. *Rail-to-Road Transfer Points at SS-9 ICBM Complexes*, Oct 68 (TOP SECRET RUFF) 25X1

NPIC. *Analysis of Rail-to-Road Transfer Points Associated with the Soviet SS-11 ICBM*, Jun 68 (TOP SECRET RUFF)

REQUIREMENT

NPIC/IEG/MSD/OMB Project 251072

KEY TO FACILITIES/AREAS*

GEN	General Support Area
GSE	Ground Support Equipment Maintenance Area
MSA	Maintenance and Shop Area
NUC	Nuclear Warhead Handling Facility
PRO	Propellant Facility
REC	Receiving Area
RIM	Receiving, Inspection, and Maintenance Facility
TRN	Training Site, Single Silo
UNI	Unidentified Area
VEM	Vehicle Maintenance Area

*See Introduction for a brief description of these facilities/areas.