DISSEMINATION CONTROL ABBREVIATIONS

NOFORN-	Not Releasable to Foreign Nationals
NOCONTRACT-	Not Releasable to Contractors or Contractor/Consultants
PROPIN-	Caution-Proprietary Information Involved
ORCON-	Dissemination and Extraction of Information Controlled by Originator
REL . . .-	This Information has been Authorized for Release to . . .

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Central Intelligence Agency

Washington D C 20505

Directorate of Intelligence

November 1987

Integration Process for New Soviet SS-25 ICBM Regiments [redacted] 25X1

Summary

Since early 1985, the Soviets have deployed a total of 10 regiments of their road-mobile SS-25 ICBMs among three deployment complexes--Yoshkar-Ola, Yur'ya, and Verkhnyaya Salda. We have determined, [redacted] that the launch-critical units of an SS-25 regiment must undergo a complex integration process before the regiment is fully capable of conducting combat operations. The integration process includes the delivery, inspection, and assembly of the launchers, missiles, warheads, and launch support elements that make up an SS-25 regiment. The identification of the integration process enables us to better determine the size of the SS-25 ICBM force, and to a lesser degree, its readiness. In the past, the size of the SS-25 force was thought to be equivalent to the number of bases that were complete and capable of housing operational units. Today, through increased

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Information available as of 31 August 1987 was used in this report. [redacted] 25X1

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we can better estimate the number of operational SS-25 launchers and the length of time required for these launchers to be readied for combat duty.

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Analysis of the integration process for the first 10 SS-25 regiments indicates that integration times varied greatly--from eight weeks to several months. The evidence is tenuous, but it is possible that even after their initial integration, SS-25 regiments may still not be fully capable of conducting combat operations, or operating at full readiness and reliability levels. Imagery shows that some SS-25 regiments returned to their associated divisional support facilities for additional processing shortly after their initial integration process was completed. We are uncertain if this activity is related to a fine-tuning of the system to correct any problems that may have developed during initial field deployment, or if this activity is actually part of the integration process. If it is part of the process, then the time necessary to integrate an SS-25 regiment extends well beyond eight weeks. We expect that as the Soviets gain familiarity and proficiency with the SS-25 system, the length of time required for integration may be reduced somewhat.

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In the instances when elements of two or more regiments were delivered to a deployment complex simultaneously, the Soviets probably integrated at least one battalion in each regiment rather than fully integrating all three battalions of any one regiment. This was probably done to give each regiment at least a minimum launch capability should war break out during integration. We are not certain, but it is possible that some SS-25 regiments participated in field training exercises before having all three battalions fully operational.

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Introduction

The road-mobile SS-25 ICBM is a three-stage, solid-propellant missile carrying one reentry vehicle (RV). The SS-25 missile and RV are contained in a canister and mounted on a seven-axle transporter-erector-launcher (TEL). In 1985, the SS-25 became operational, and 72 launchers were deployed among eight bases in the Yoshkar-Ola, Yur'ya, and Verkhnyaya Salda missile complexes (figure 1). During 1986, the Soviets added two more bases at the Verkhnyaya Salda complex. An SS-25 regiment is garrisoned in the operations area of each base (figure 2). A regiment includes three launch battalions and one battalion that provides regimental command and control functions. Each of these launch battalions contains three TELs and associated missile support vehicles (MSVs). A regiment also includes field support units that are normally housed in either the operations area or in an adjacent regimental support area. Figure 3 shows the organization of an SS-25 regiment.

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Figure 1
Soviet SS-25 Mobile Missile Bases, August 1987

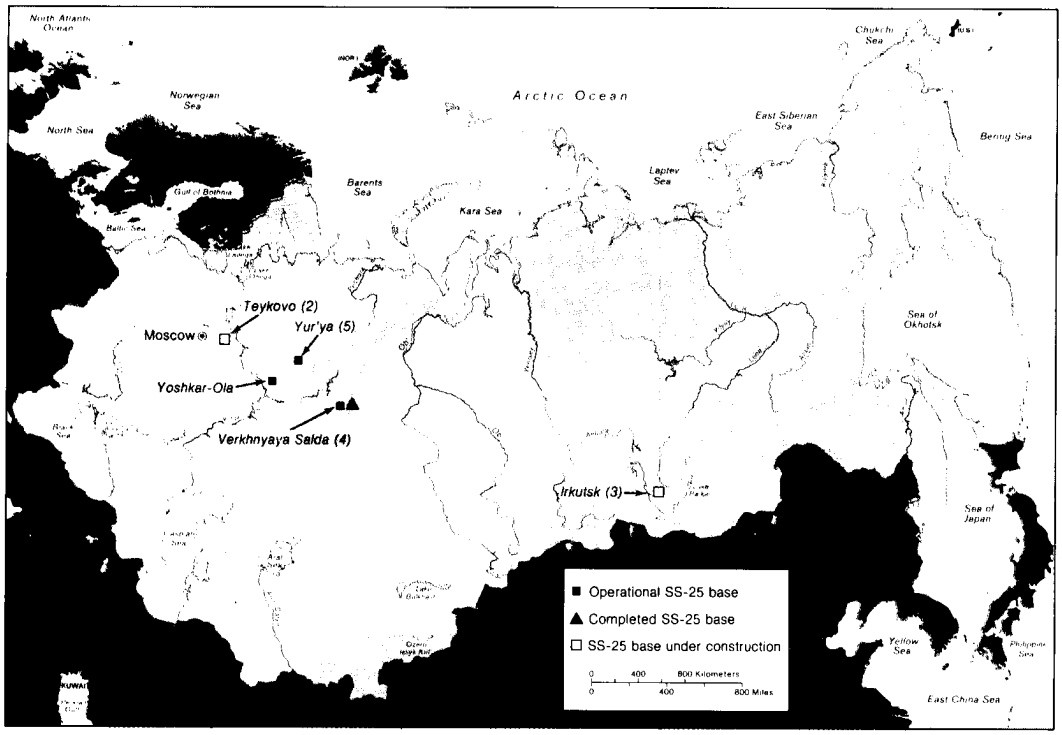

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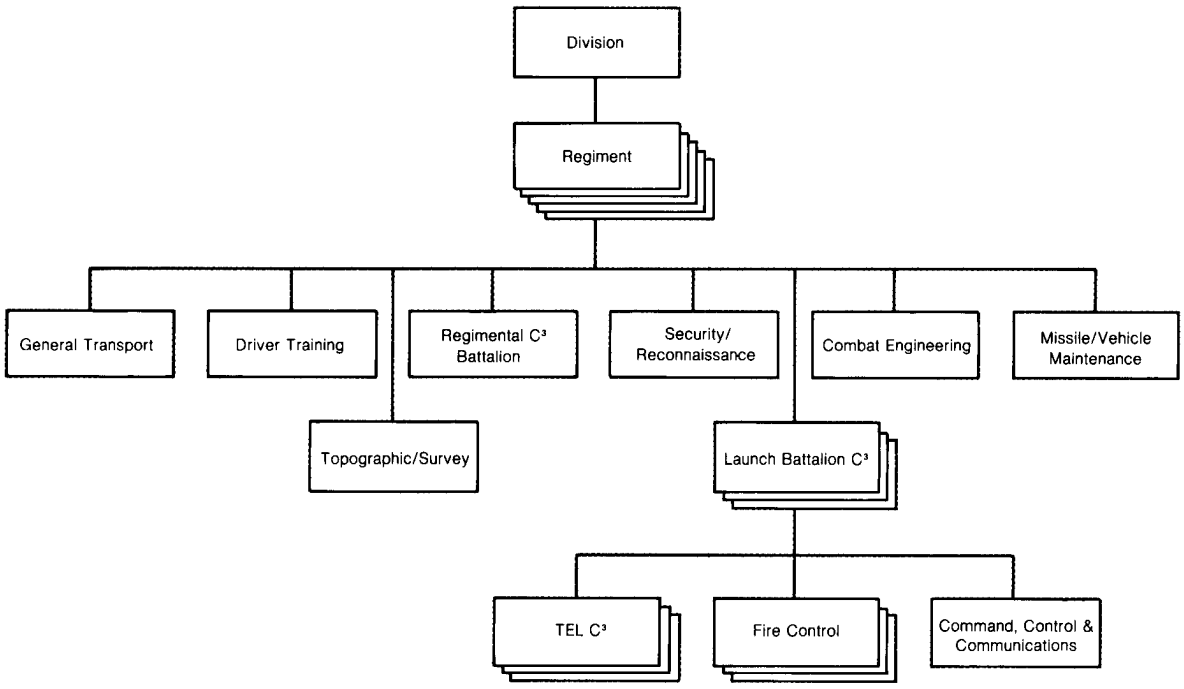
Figure 3
SS-25 Unit Organization



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To become operational and launch-capable, the three launch battalions of an SS-25 regiment undergo a complex integration process at the division-level [redacted] 25X1
Integration is the process whereby the various elements of an SS-25 regiment are delivered to the deployment complex, inspected, and assembled into an operational unit. We have not observed the entire process for any single regiment, [redacted] 25X1
[redacted] of 25X1
the first 10 SS-25 regiments to become operational. This paper describes the integration process for new regiments, the facilities located at the deployment complexes associated with this process, and the time required to complete the process for each of the first 10 regiments. [redacted] 25X1

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Key Elements of an SS-25 Regiment

An SS-25 regiment is not delivered to a deployment complex ready to conduct combat operations. Because of their diversity, the elements comprising a regiment are developed or produced at different national-level facilities across the Soviet Union. The elements are then routed through a logistics network and delivered separately by rail to the rail-to-road transfer point (RTP) of a deployment complex (figure 4). Various logistic and scheduling considerations require that regimental elements be delivered to the RTP on a set schedule, usually in battalions.

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The key elements of an SS-25 regiment are personnel; field support units; command, control, and communications (C^3) units; TELs and MSVs; missiles and non-nuclear payload components; and RVs.

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Preparation and Delivery of the Key Elements of an SS-25 Regiment

Personnel

The combat launch crews and support troops serving with SS-25 regiments have received extensive training by the time they reach their regimental base. The combat crews are trained at the Plesetsk Missile Test Center while the support troops are trained at Strategic Rocket Force (SRF) specialist schools and also at Plesetsk. Combat crews train together as a regiment. Training usually lasts six weeks and culminates in a missile launch. Upon completion of training, combat crews and support troops either report directly to their base for duty or to an interim location to await the completion of their base. Support troops may arrive months ahead of regimental combat launch crews. Some personnel may report to an SS-25 regiment following reassignment from another SRF unit.

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Field Support Units

The support units of a regiment include combat engineering, security and reconnaissance, general transport, driver training, and topographic and survey. Of these, only driver training units contain equipment and vehicles that are unique to the SRF. After production, all vehicles are transferred to the SRF, routed through a logistics network, and delivered to an RTP. Vehicles and equipment may be temporarily stored at a missile support rear depot (MSRD) during this process.

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C^3 Units

The C^3 units discussed in this paper are those associated with the regimental command post (CP) and its three subordinate battalion CPs. The regimental and the three subordinate

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battalions' CPs train with their launch elements at Plesetsk. Because C^3 is an integral part of a mobile missile unit, it is likely that the CPs and launch elements of a regiment are routed together through the logistics network. These CPs have several MSVs--large four-axle MAZ vehicles containing power generators and communications, electronics, and computer equipment--and standard van-bodied trucks containing radio stations. The logistics network for C^3 units is the same as for TELs and MSVs.

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TELs and MSVs

The TELs and MSVs for SS-25 launch battalions are assembled at the Volgograd Steel and Machine Plant and use large, modified MAZ-543 chassis built at Minsk. After production is completed, TELs and MSVs are transported via rail to Plesetsk for use in combat crew training or to an MSRD for interim storage. At Plesetsk, regimental combat crews train with their TELs and MSVs in battalion units. After training, the crews and equipment are shipped to a deployment complex RTP. TELs and MSVs are shipped in battalions to retain unit integrity. An SS-25 launch battalion consists of three TELs and at least five MSVs. [redacted] 25X1

[redacted] 25X1

Missiles and Non-nuclear Payload Components

SS-25 missiles and their associated non-nuclear payload components are final assembled at Votkinsk and then shipped either to Plesetsk for use in crew training or to Bobrovskiy MSRD for temporary storage. [redacted] 25X1

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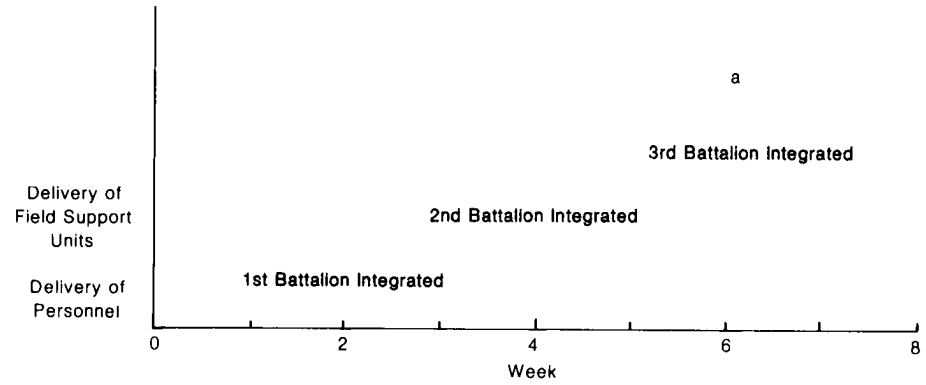
Figure 5
SS-25 Integration Sequence



[a] Delivery and inspection of TELs, MSVs, C^3, missiles, payload-associated components and nuclear warheads for regiment.

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Integration Process for SS-25 Regiments

The integration process for an SS-25 regiment includes delivery, inspection, and assembly (figure 5). Integration times varied greatly among the first 10 regiments. However, it appears that at least two or three weeks were required to complete integration for each launch battalion, or about eight weeks for an entire regiment. Most of the time and effort in the integration process is devoted to the inspection and assembly of the regimental elements. [redacted] 25X1

Delivery The elements composing an SS-25 regiment generally are delivered in the following sequence: personnel, field support units, C^3 units, TELs and MSVs, missiles and non-nuclear payload-associated components, and RVs. This sequence will not vary significantly because of logistic constraints. Some personnel and field support units probably arrive weeks or months ahead of the launch equipment.[1] The early arrival of these elements reflects the Soviet desire to create a functioning infrastructure before the missiles and launchers arrive. [redacted] 25X1

[1] Because they are potentially long-lead items, the time required to deliver personnel and field support units is not included in our eight-week estimate. [redacted] 25X1

[redacted] 25X1

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After the personnel and field support units arrive, SS-25 launch-related equipment--TELs, MSVs, and C^3 units--is delivered to the RTP in integral units (figure 6). The C^3 units arrive first, probably to establish a functioning network for control of the nuclear assets. The Soviets have demonstrated that they can offload nearly an entire regiment of launch equipment (about 30 vehicles) from rail flatcars in one or two days. TELs and MSVs then go to their associated base to await the delivery of the missiles. This practice results in launch-related equipment sometimes being imaged at a base, well before a regiment is launch capable. Normally, within days of TEL and MSV delivery, a regiment's missiles and payload-associated crates are delivered in battalion groupings to the RTP (figure 7). Missiles are then transferred directly onto TELs while the payload component crates are loaded onto MAZ cargo trucks and payload-associated transporters.

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Inspection and Assembly

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Inspection of TELs and MSVs probably occurs shortly after their delivery to the RTP. TELs and MSVs are inspected for any damage sustained during shipment. Inspection probably occurs in the clerestory building, driver training areas, and the regimental base. TELs are probably checked for performance of erecting mechanisms, leveling jacks, and general vehicle capabilities. MSVs are probably also tested for basic vehicle performance, as well as reliability of their electronics, computer, and communications equipment. After inspection, TELs and MSVs probably return to their base to await the arrival of missiles and payload-associated crates.

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Next, the payloads and missiles are inspected, and the payload is assembled to the missile. Upon arrival, the payload-associated crates are unloaded from their railcar and normally taken to the NPHF for unpacking.[2] At the same time, missiles are transferred directly onto the TELs from their railcars, and the TELs are

[2]However, in 1985, at Yur'ya and Verkhynyaya Salda, when the Soviets were integrating more than one regiment at a time, these crates were often taken to other nearby locations for interim storage until needed. For example, numerous sets at Yur'ya were stored at a deactivated SS-7 base.

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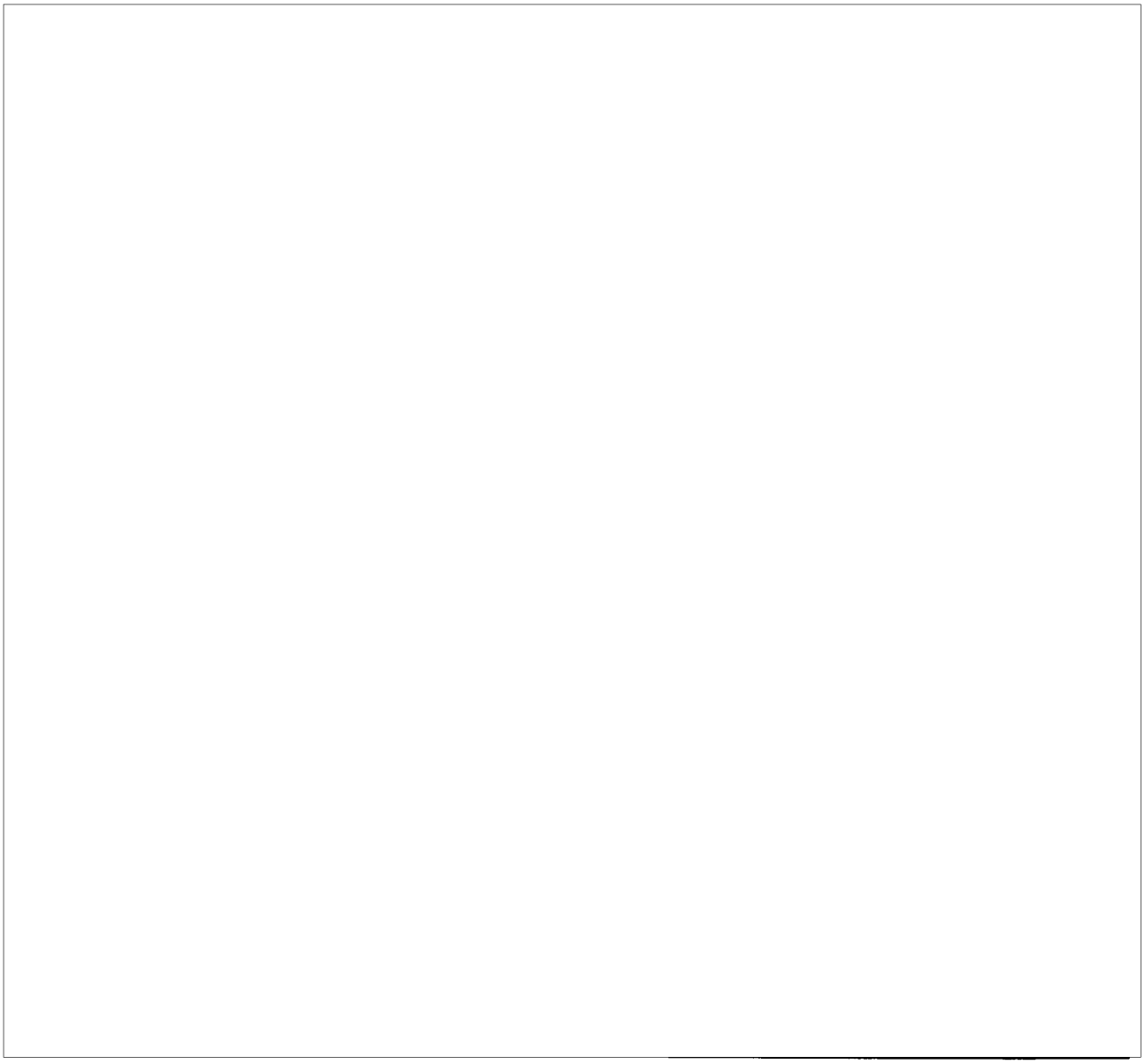

driven into the high one-bay and two-bay buildings where the missiles' electrical and propulsion systems are inspected (figure 9). During this time, the non-nuclear payload-associated components--probably including the guidance system and its interfacing structures--are inspected and tested. These components are then assembled to the missile and checked for compatibility. Probably the guidance system's instruments are calibrated, targeting information is inputted, and a simulated flight profile is run. A dual-masted MSV for each TEL being tested, is located outside of the high one-bay and

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two-bay buildings during this procedure (figure 10). The MSV probably monitors missile and guidance diagnostics while providing a C^3 interface with the battalion CP, essentially providing the same power, computer, and electronics support to the TEL that it provides when the TEL is field deployed.

The RV is the last major element assembled to the SS-25 system. It is probably prepared (a process that includes the installation of safe, arming, and fuzing mechanisms) and then driven to and mated to the missile's post-boost vehicle. After a final checkout, the launch battalions of the integrated SS-25 regiment are driven back to their base.[3] Once all three battalions have been integrated and returned to their base, the Soviets probably check the C3 links within the regiment.

The procedures described in this paper have been devoted primarily to the mechanical aspects of integration. However, an SS-25 regiment's capability to successfully fulfill its mission extends beyond the inspection and assembly of components. As a result, an SS-25 regiment is probably not fully operational until

[3]The availability of three bays allows the Soviets to integrate an entire launch battalion simultaneously. While one battalion the regiment's other two battalions are probably in other stages of the integration process. The delivery of regimental elements in battalion units permits this overlap.

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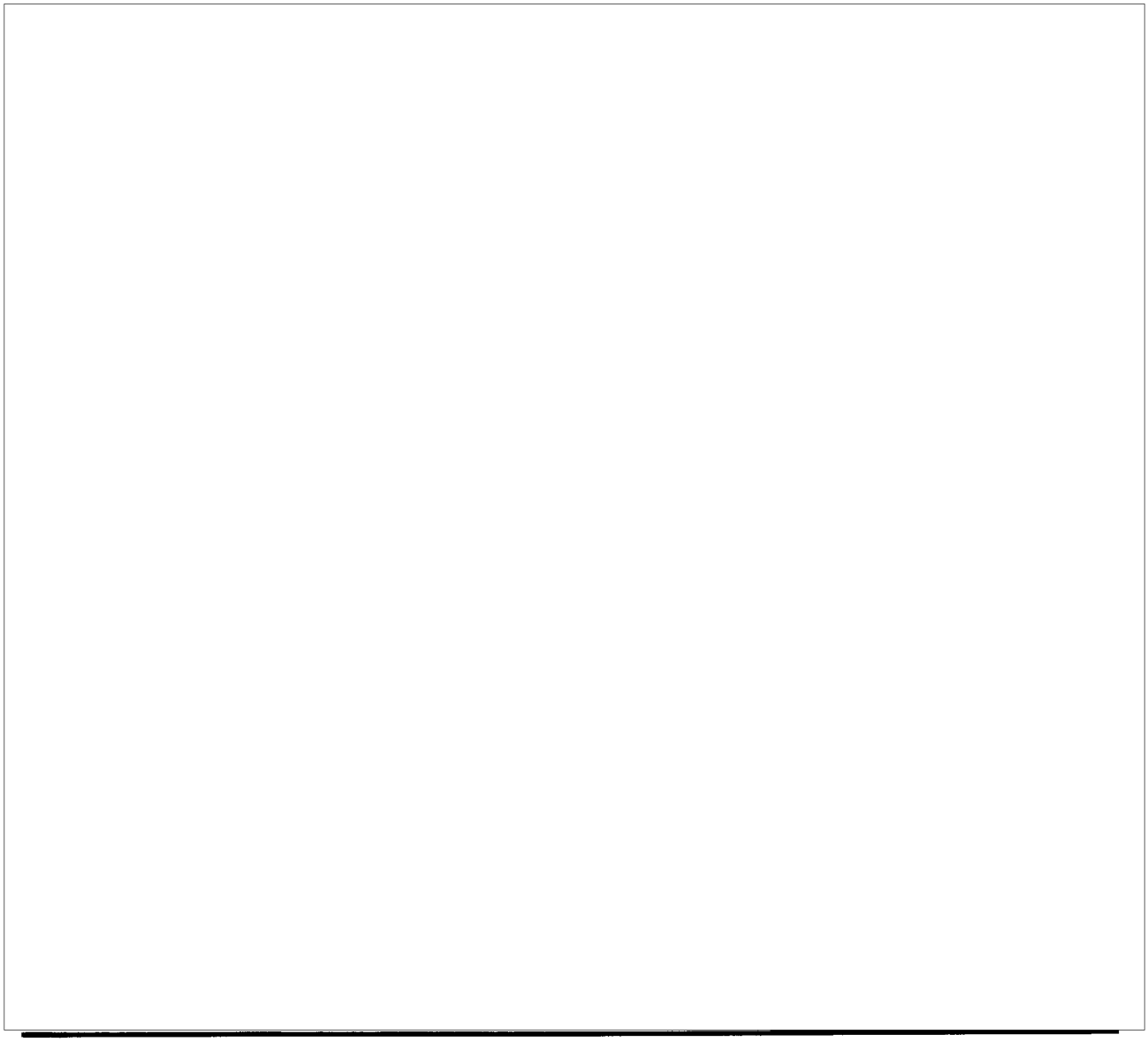

sometime after the integration process is complete. 25X1

a regiment receives certification 25X1
training by the SRF following delivery to a base. This is usually accomplished through the regiment's first field deployment, where the regiment is graded on its competence in operational procedures. After a successful completion of certification training, the regiment enters combat alert duty.

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Table
Deployment Milestones for the First 10 SS-25 Regiments

	Base Complete	TEL, MSV, Missile Delivery	Integration Complete
Yoshkar Ola	November 1984	January 1985 March 1985 April 1985	June 1985
Yur'ya 1	December 1984	May 1985 June 1985	August 1985
Yur'ya 3	September 1985	October 1985 November 1985	February 1986
Verkhnyaya Salda 5	October 1985	November 1985	December 1985
Verkhnyaya Salda 2	November 1985	November 1985 December 1985	January 1986
Yur'ya 5	October 1985	November 1985	January 1986
Yur'ya 2	October 1985	November 1985 December 1985	June 1986
Yur'ya 4	November 1985	November 1985 December 1985	May 1986
Verkhnyaya Salda 1	October 1986	December 1986 January 1987	March 1987
Verkhnyaya Salda 3	November 1986	June 1987 July 1987	September 1987

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