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Directorate of Intelligence

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Rear Depot Support to Soviet Heavy ICBMs (S NF)

Summary

Since the 1960s, the Soviets have used national-level missile support rear depots to provide storage, supply, and maintenance support to their Strategic Rocket Forces. Specialized storage and maintenance facilities for Soviet heavy ICBMs are located at two such depots-- Bobrovskiy and Glazov. The primary function of Bobrovskiy has been missile storage, but it also probably provides personnel and logistic support for missile maintenance and modification programs at deployed complexes. Bobrovskiy probably also performed minor maintenance on the current deployed heavy ICBM, the SS-18, before 1984. Since 1981, however, Glazov has become the primary facility for the repair and refurbishment of defective SS-18 ICBMs. Both depots will probably continue to support the SS-18 ICBM system until it is completely replaced by the SS-18 follow-on system by 1995.

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Information as of 27 October 1987 was used in this report. (U)



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We expect Bobrovskiy and Glazov to play a major support role for the SS-18 follow-on. Support to that program will probably be very similar to what was provided for the SS-18 system and will include the following:

- o Short-term storage for some missiles that are in transit from the production plant to the deployed complexes, beginning as early as 1988.*
- o Long-term storage for missiles.*
- o Maintenance and refurbishment of missiles, when required.*

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Introduction

The Soviets currently have one heavy ICBM system, the SS-18, which is deployed in 308 hardened silos. Three variants of the SS-18 were deployed between 1974 and 1979. A fourth variant, the Mod 4, was deployed between 1979 and 1985 and most of the original three variants were replaced by the Mod 4 between 1981 and 1985. System modifications associated with deployment of the Mod 4 involved the launch silo, missile airframe, and warheads. In June 1986, the Soviets began modifying SS-18 silos again, this time for the SS-18 follow-on ICBM--the TT-09--which is currently undergoing flight testing at Tyuratam Missile and Space Test Center. Current assessments are that the follow-on will have improved engines and guidance systems that will enable it to deliver a larger payload more accurately. Deployment of the SS-18 follow-on will probably begin in 1988, and, unless restricted by an arms control agreement, should be completed by 1995. In preparation for this deployment, SS-18s are being withdrawn from the deployed force and launch silos are being modified to accommodate the SS-18 follow-on. [redacted]

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The Soviet Strategic Rocket Forces (SRF) operates seven national- or strategic-level missile support rear depots (MSRDs) in the western USSR (figure 1). The MSRDs have the primary responsibility for storage and maintenance of strategic ballistic missile airframes, airframe components, and missile-associated ground support equipment (GSE) for the SRF. These depots have a total of over 200 storage buildings capable of housing ballistic missile airframes. [redacted]

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MSRDs also provide additional logistic support for periodic maintenance and technical inspection programs that are performed at the launch silos. Extensive technical inspections of launch groups are conducted at least annually, and major periodic maintenance is conducted once every three years. If, during an inspection, any missile is identified as defective, it is shipped to the MSRDs for major maintenance, refurbishment, or, in some cases, disposal. Routinely scheduled major maintenance and refurbishment of missiles and GSE--an extensive and time-consuming task--are also normally carried out at the MSRDs. [redacted]

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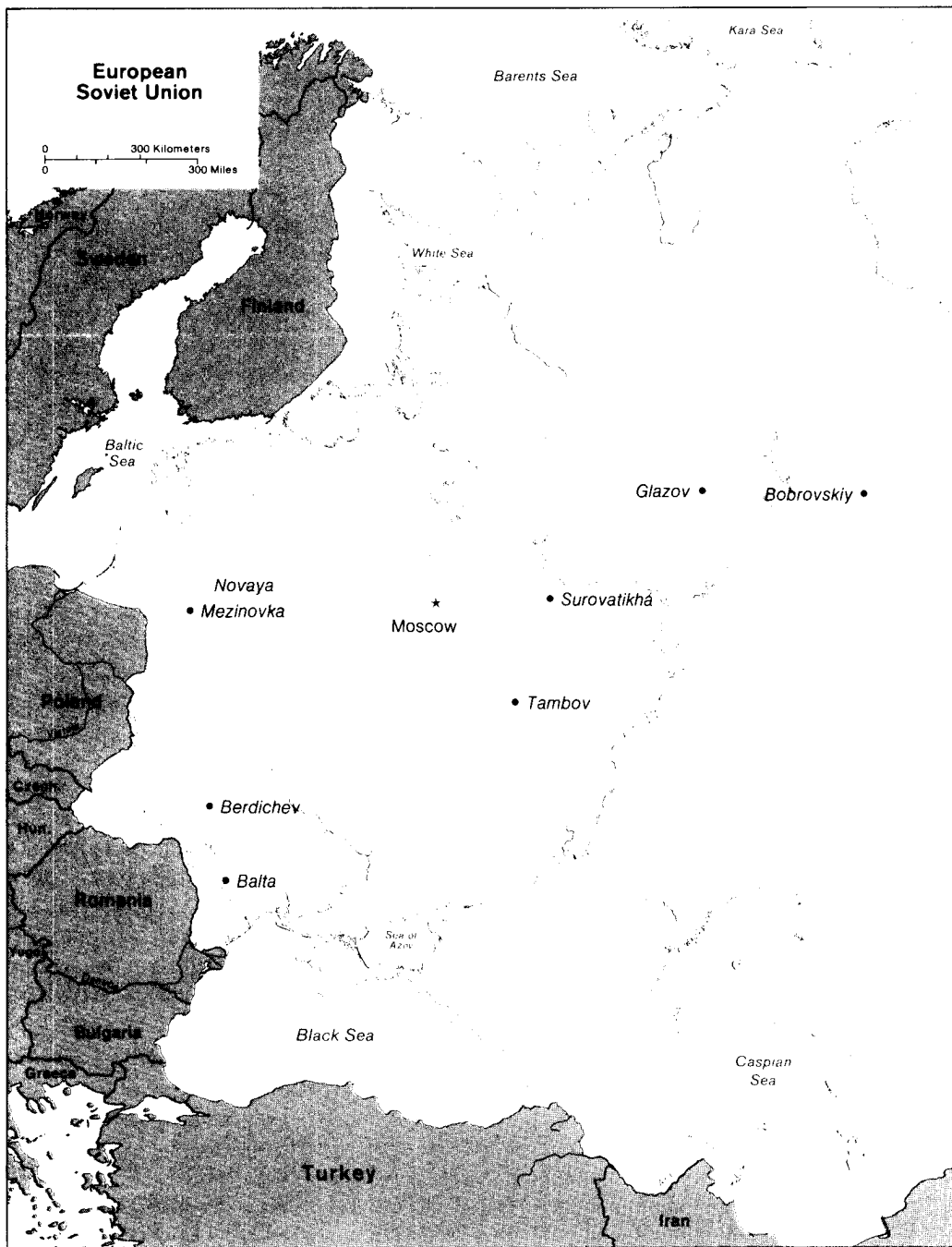
Two MSRDs currently provide support for the SS-18 ICBM system--Bobrovskiy and Glazov. This paper will focus on the types of support provided for the SS-18 by these MSRDs, assess the types of support these MSRDs will provide for the SS-18 follow-on, and project when this support will begin. [redacted]

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Figure 1
Missile Support Rear Depots, USSR



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Support for SS-18 ICBM System

Bobrovskiy Missile Support Rear Depot

In the early 1960s, the Bobrovskiy MSRDR (figure 2) was associated with storage of the SS-7 ICBM. The depot later stored SS-11 and SS-13 ICBMs and was equipped to conduct maintenance programs on both. A specialized airframe storage area, completed in 1967, was later modified to support the SS-18 ICBM. During SS-18 deployments, Bobrovskiy was the site where some missiles were temporarily stored before delivery to a deployed complex. [redacted]


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Currently, Bobrovskiy's primary function is to store up to 30 spare SS-18 airframes, and airframe components. The SS-18 storage area has five missile storage buildings, each capable of storing six missiles (figure 3). A sixth building is used for minor maintenance and preparation of missiles for transshipment. Airframe components and missile dollies are often seen outside the missile storage buildings, suggesting that some buildings are not being used for missile airframe storage. Additional missiles are stored at each of the six deployed SS-18 complexes, where up to four missiles could be available for use as maintenance spares. If--during one of the frequent missile technical inspections or through the performance of periodic maintenance--a

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missile is found to be defective, it is removed from the silo and replaced by one of the maintenance spares stored at the deployed complex. Minor maintenance on the missile is then conducted at the deployed complex. If the defective missile cannot be repaired at the complex, it is shipped to Bobrovskiy for temporary storage or to the Glazov MSRDR for major maintenance, refurbishment, or destruction. A replacement missile is then shipped from Bobrovskiy to the deployed complex. [redacted]

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SS-18 ICBM transshipment activity at Bobrovskiy has been highest during initial system deployments, or during major modification or upgrade programs. For example, SS-18 transshipment activity was observed more frequently during the initial deployment of SS-18 ICBMs from 1974 to 1981, and again during the Mod 4 retrofit program from 1981 to 1985. Some SS-18 Mod 4s and component sets, after being manufactured at Dnepropetrovsk, were probably sent to Bobrovskiy for temporary storage before being shipped to deployed complexes for installation in modified silos. After completion of the Mod 4 retrofit program, activity levels at Bobrovskiy again fell off dramatically. Bobrovskiy's primary responsibility since the end of 1984 has apparently been the storage and shipment of spare SS-18s for the deployed complexes. [redacted]

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The recent deactivation of SS-18s in preparation for silo modifications to accommodate the SS-18 follow-on has brought about an expected increase in SS-18 activity at the Bobrovskiy MSRDR. The number of empty SS-18 trains--unique three-railcar sets--in Bobrovskiy's railyard fell dramatically as they were sent to the deployed complexes to pick up deactivated SS-18s (figure 4).¹ Some of these trains have returned to the MSRDR with SS-18s, which are in temporary storage. We expect transshipment activity at Bobrovskiy to continue to increase as more SS-18s are deactivated and SS-18 follow-on deployments begin. [redacted]

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Glazov Missile Support Rear Depot

In the early 1960s, the Glazov MSRDR (figure 5) was associated with the storage of SS-6 and SS-7 ICBM airframes. The depot has also supported the SS-6 and SS-11 dismantlement and destruction programs, the reconfiguration of the SS-11 Mod 1 to the SS-11 Mod 2/3, and the SS-11 Mod 2/3 refurbishment program. After the refurbishment program, Glazov was involved with maintenance on the SS-17 and SS-19 ICBMs. [redacted]

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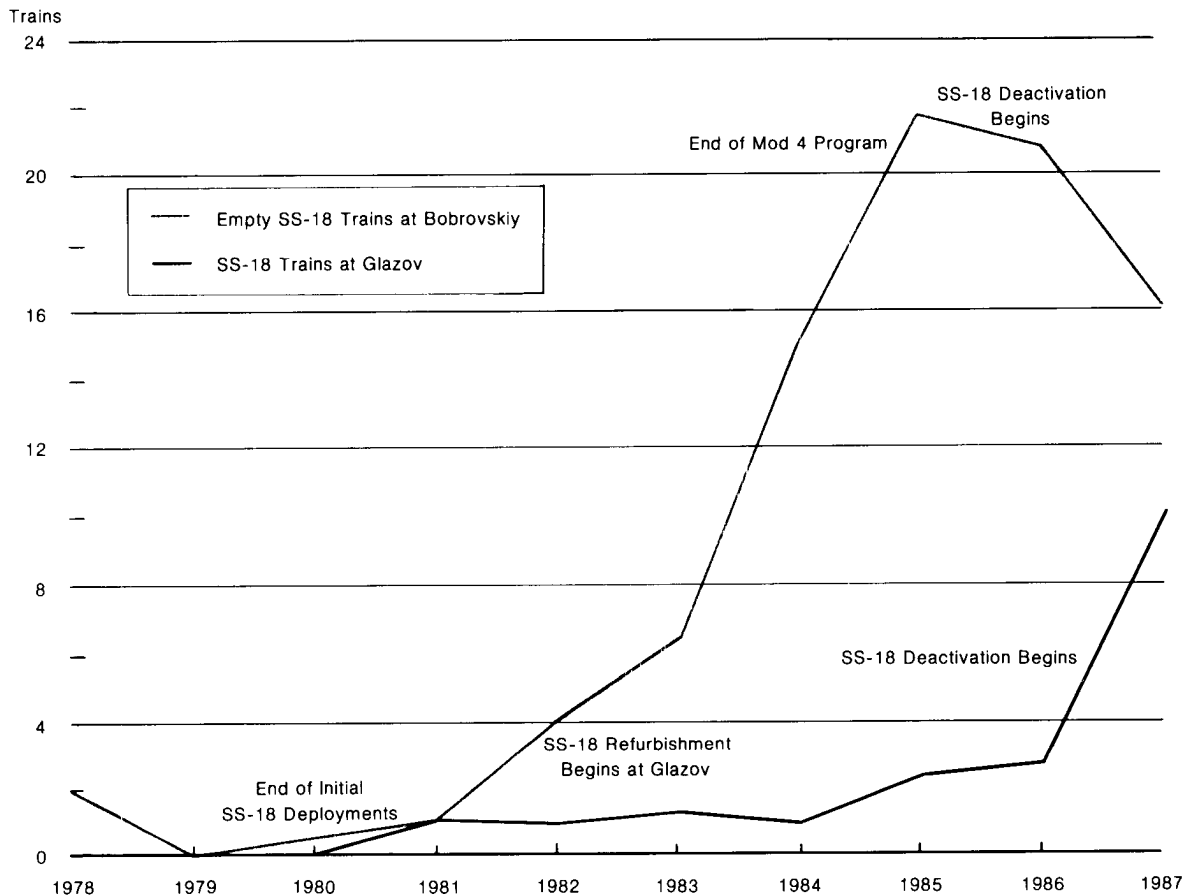
¹Unique railcars are required for SS-18 ICBM shipment because of the large size of the missile. [redacted]

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Figure 4
SS-18 Trains at Missile Support Rear Depots



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Since 1981, Glazov MSRD probably has performed maintenance and refurbishment on selected SS-18 airframes--including maintenance which previously would have occurred at Bobrovskiy MSRD. Because Glazov has no SS-18 airframe storage facilities, all SS-18 airframes at this MSRD are stored in the open on SS-18 train sets, allowing us to monitor the level of SS-18 activity occurring at this depot. [redacted]

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Glazov's involvement with the refurbishment of the SS-18 ICBM began in 1981, six years after initial SS-18 deployments began.²

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²The lack of a large quantity of scrap at the Glazov facility since 1981 indicates that this program was involved primarily with refurbishment, not dismantlement and destruction. [redacted]

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The refurbishment process observed at Glazov was probably undertaken to extend the service life of the SS-18 system, which, by 1987, had exceeded its intended design life by several years.³ A specially equipped airframe maintenance facility at Glazov includes a large rail-served missile receiving and checkout building with machine shop, a purge building for burning purged propellant vapors, and underground water storage tanks for washdowns of propellant tankage (figure 6). The airframe maintenance facility disassembles airframes, repairs or replaces defective components, and reassembles the airframes. The refurbished airframes can then be shipped to Bobrovskiy for storage or to the deployed complexes for use as operational

³The Soviets had stated that 10 years is the life span of the SS-18 system.

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missiles or maintenance spares. [redacted] 25X1
 at least 30 SS-18s have been refurbished in this program since it began, and the rate at which missiles are refurbished has increased from at least two per year in 1982 to at least seven per year by 1987. This facility has also performed maintenance on SS-11, SS-17, and SS-19 airframes concurrent with the SS-18 refurbishment program. [redacted] 25X1

The number of SS-18 trains--and, presumably, SS-18 missiles--normally observed at Glazov has increased rapidly from an average of five to about 15 in the past year, and we expect these deactivated SS-18s to be destroyed soon (figure 4). Although Glazov is capable of and has destroyed a limited number of SS-18s, it has been historically associated primarily with the maintenance and refurbishment of airframes, not dismantlement and destruction.⁴ The Balashov Surface-to-Surface Missile Repair Plant (SSMRP)--which was responsible for the dismantlement and destruction of the SS-18's predecessor, the SS-9--is currently idle, and recent activity at Balashov suggests the Soviets may be preparing this plant for a new disposal program, possibly involving deactivated SS-18s. [redacted] 25X1

Future Support for SS-18 Follow-on ICBM

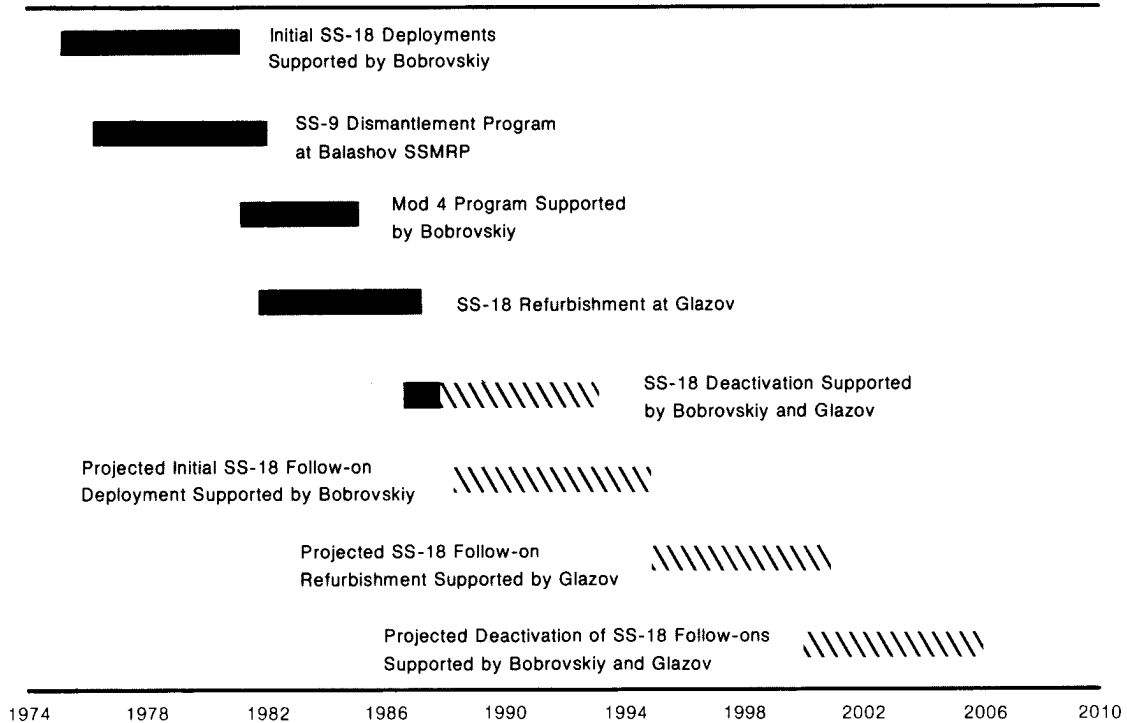
On the basis of its participation in the initial SS-18 ICBM deployment, Bobrovskiy should play a key role in the initial deployment of the SS-18 follow-on missile. Deployment is expected to begin in 1988 and, on the basis of the length of past Soviet missile deployment or modification programs, will probably take five to six years to complete. During this period of transition, Bobrovskiy will probably support both the SS-18 and the SS-18 follow-on missile programs. Some SS-18 follow-ons probably will be shipped directly from their production plant to Bobrovskiy, where they will be temporarily stored before being shipped to a deployed complex. During the SS-18 follow-on deployment program, we expect to see a high level of missile transshipment activity at Bobrovskiy, as we did during initial SS-18 deployment. This activity should begin in 1988 or 1989, and follow the loading of the first completed SS-18 follow-on launch group--Group B--at Dombarovskiy ICBM Complex. It will continue for five or six years, until after completion of SS-18 follow-on deployment. Additional SS-18 follow-on missiles will probably be stored at Bobrovskiy to be subsequently used for

⁴During the refurbishment process, defective components are identified and replaced or repaired at the MSRD. To date, this process has resulted in the elimination of at least three SS-18 airframes. [redacted] 25X1

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Figure 7
Soviet Heavy ICBM Life Cycle: SS-18 and SS-18 Follow-on



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training launches at the test range and for maintenance spares.¹ Bobrovskiy should cease supporting the SS-18 and dedicate all its heavy ICBM support capability to the SS-18 follow-on by completion of the SS-18 follow-on's deployment.

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We expect Glazov's role in the SS-18 follow-on program to be one primarily of refurbishment and repair of any defective missiles. On the basis of our initial observations of the SS-18 ICBM system, we expect the SS-18 follow-on missile to have a lifespan of 10 to 15 years. Therefore, the requirement to refurbish SS-18 follow-on airframes at Glazov could begin as early as six years after initial deployment, or in 1994. Such a program would extend the service life of the SS-18 follow-on into the 21st century (figure 7).

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⁵In time of war these missiles could be shipped to deployed complexes for use as refires.

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