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NATIONAL PHOTOGRAPHIC
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PHOTOGRAPHIC
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REPORT

USABLE DEPTH DIFFERENCES IN SS-18 ICBM LAUNCH SILOS, USSR

~~Top Secret~~

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JULY 1976

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USABLE DEPTH DIFFERENCES IN SS-18 ICBM LAUNCH SILOS, USSR

ABSTRACT

1. The SS-18 ICBM is being deployed in both new-start (built from scratch) type IIIF launch silos and in converted type IIIF launch silos. The converted silos have 25X1
less usable silo depth than the new-start silos. Usable silo depth is defined as the vertical dis- 25X1
tance from the bottom of the closed silo door to the top of the silo base.

2. The new-start type IIIF silo has a usable silo depth compared to 25X1
the usable silo depth in the converted type IIIF silo. The SS-18 missile 25X1
canister associated with the converted IIIF silo shorter than the canister 25X1
associated with the new-start silos.

3. A silo depth difference has not been confirmed for the type IIIF launch silos at Tyuratam Missile/Space Test Center. However, type IIIF silos of different depths probably exist at Tyuratam because SS-18 canister sections of different lengths have been observed there.

4. This report contains a location map, four annotated photographs, and a line drawing.

INTRODUCTION

5. Type IIIF launch silos for the SS-18 ICBM are being constructed at all six deployed SS-9 SSM complexes (Figure 1). As of May 1976, the construction involves 20 new-start silos and conversions at 12 launch groups.[1]

6. Two of the ten type IIIF launch silos at Tyuratam Missile/Space Test Center SSM (TTMSTC; were converted from the type IIIC to the type IIIF silo configuration. 25X1

BASIC DESCRIPTION

Silo Construction

7. The type IIIF silo consists of a faced silo shaft, silo base, six silo wall segments, headworks base, headworks, a silo door housing, and a silo door.[2] Previously, the silo wall in the converted silo was thought to be the same depth as that in the new-start silos.

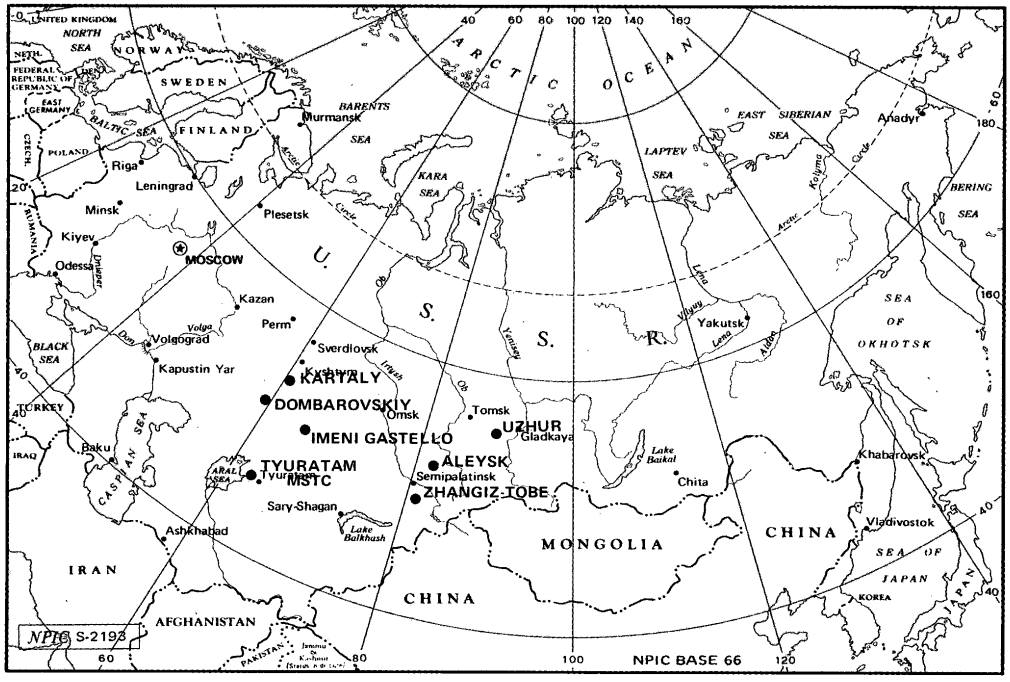

FIGURE 1. LOCATIONS OF TYPE IIIF (SS-18) SILOS

25X1

8. Photography indicates that the combined depth of the assembled silo wall segments in a converted silo [redacted] in a new-start silo. 25X1

9. Both silos, converted and new-start, use five [redacted] high segments. 25X1
However, a sixth segment in the converted silo is [redacted] 25X1
[redacted] in the new-start silo. 25X1

10. This newly identified sixth wall segment for converted silos is assembled on the construction apron from prefabricated steel sections (Figure 2). The assembled segment has an inner steel liner [redacted] Reinforcing bar 25X1
(rebar) is attached to the outer surface of the liner, forming [redacted] 25X1
[redacted]. An outer ring of rebar extends [redacted] above the height of the steel 25X1
liner and the rebar attached to it. This extension gives this segment an overall height [redacted] 25X1
[redacted] 25X1

11. After assembly, this sixth wall segment is attached to the top of the last [redacted] 25X1
segment prior to it being installed in the silo (Figure 2). In this position, this wall segment when installed is joined to the bottom of the headworks base. It is assumed that the [redacted] 25X1
extension of rebar sleeves into the bottom of the headworks base allowing the inner diameters of both components to be welded together.

12. The sixth segment at new-start silos is handled the same way as the sixth segment at converted silos (Figure 3). However, the rebar that extends above the steel liner height of this wall segment is not as pronounced as that on the segment used in converted silos.

13. Following the installation of the silo wall segments, the headworks base, headworks, silo door housing, and silo door are assembled and installed, in that order, in the silo on top of the wall segments. The size and configuration of these upper silo components appear to be identical for the two types of silos. When completed, the converted IIIF silo has an estimated usable silo depth of [redacted] less than the estimated usable depth of the new-start 25X1
IIIF silo.

SS-18 Canister

14. The length of the two-section SS-18 missile canister is adjusted in proportion to the depth of the silo it is installed in. The less deep, converted type IIIF silo is loaded with an SS-18 housed in a canister [redacted], whereas the canister loaded into the new-start type IIIF silo 25X1
[redacted] 25X1

15. The lower section of the SS-18 canister, [redacted], is the same length for either 25X1
silo (Figure 4). The upper section can be either of two lengths, [redacted] 25X1
[redacted] 25X1

16. The observation of these canister length combinations (Figure 5) for the SS-18 substantiates the construction differences observed for the converted and new-start type IIIF silos. Figure 6 shows a cross-sectional view of converted and new-start type IIIF launch silos.

17. The strategic significance of why the SS-18 is being deployed in silos of two different depths is unknown.

Tyuratam

18. Ten type IIIF launch silos are at TTMSTC: two (R10 and R11) were converted from type IIIC silos. The complete silo wall assemblage was not seen on the aprons at these sites during their construction; therefore, it is not known if these silos are less deep than the new-start silos at TTMSTC.

19. The observation of a [redacted] canister section on the apron at Tyuratam ICBM 25X1
Launch Test Site R11 [redacted] suggests that 25X1
the converted IIIF silos are also less deep at TTMSTC than the new-start silos there. In addition, a
[redacted] canister section was seen on the apron at the Tyuratam new-start ICBM Launch 25X1
Test Site R7 [redacted] Upper canister sections of both lengths 25X1
have been seen on numerous occasions in Tyuratam ICBM Test Support Facility 3 [redacted] 25X1
at TTMSTC (Figure 4, insets A and B).

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