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TCS-2198-65
8 March 1965

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Declass Review by NIMA/DOD

MEMORANDUM FOR: Chairman, Deployment Working Group, GMAIC

SUBJECT: Examination of All Deployed Complexes
Containing Single Silos

REFERENCE: GMAIC Requirement 11-65
(NPIC Project 11121-5)

1. This memorandum is in response to your requirement which requests an examination of all deployed complexes containing single silos, type of configurations, deployment patterns, dimensions, etc.
2. Enclosed are answers to specific requirements.
3. This project is considered to be complete.

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for [Redacted]
Colonel, USA
Assistant for Photographic Analysis, NPIC

Enclosure:
Enclosure A
Figures 1-7

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Distribution:

1-7-OACSI-DA [Redacted] (w/enc)	14-DIAXX-4 (w/o enc)	25X1A
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a. Types of Configurations

There are two types of single silos deployed in the Soviet Union at this time. These are referenced type IIIC sites and IIID sites.

The evidence obtained from the 95 single silo sites under construction reflect the differences in construction techniques and silo dimensions. No deployed single silo sites have been identified as complete although a few IIID sites are considered to be in a late stage of construction.

b. Deployment patterns.

The type IIIC sites under construction consist of an excavation in excess of 100 feet on each side. No firm depth has been determined for the excavation but is estimated not to exceed 30 feet. When the excavation is complete a coring appears in the bottom and approximately in the center. Next a square platform or foundation appears at the bottom of the excavation. At this stage the silo appears round and projects above the square foundation. Then a square silo structure with a circular opening in the center appears over the foundation. As the silo structure progresses upward a ramp is observed from the edge of the excavation to the silo structure. These construction techniques show a marked similarity to the construction of any one of three silos seen at the type IIIA sites. A peculiarity of the IIIC sites is the two graded earth areas on opposite sides of the excavation. One is rectangular, the other is square. These usually appear concurrent with the silo excavation.

Limited observance of a possible electronics facility indicates that there will be one such facility for every three sites. This feature combined with site arrangement infers that the type IIIC sites will be associated in groups of three. However, at the present stage of construction this can only be a tentative assumption.

The type IIID sites under construction present a much smaller image than the IIIC sites and fewer construction details are apparent. The excavation is less distinctive and a coring probably extends downward from the bottom of the excavation. The round silo structure with its distinctive ring characteristic then extends upward from the bottom of the excavation. As the silo structure approaches, or reaches ground level a small squarish projection appears on the outside of the silo wall.

No IIID sites have been identified as complete however, there is some evidence at the more advanced sites that the completed site pattern will include a loop road.

Available evidence, although still tentative, indicates that these sites will be deployed in a ring-like configuration of 9 sites with a tenth site near the center containing a launch site and a possible control facility.

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c & d. Single silo ICBM sites deployed at Olovyannaya, USSR

The single silo ICBM sites deployed at Olovyannaya are arranged in two launch groups designated "D" and "E". Launch group D consists of ten confirmed launch sites designated sites D1 through D10. Sites D1 through D6 are arranged in a ring around site D7, and sites D8, D9 and D10 form a segment of a second ring on the NE side of the primary ring. The approximate distances and directions between the sites are depicted in Figure 1. Launch Group E consists of seven confirmed, and three possible launch sites designated E1 through E10. Sites E2 through E7 are arranged in a ring around site E1 and possible sites E8, E9, and E10 form a segment of a second ring on the NW side of the primary ring. The approximate distances and directions between the sites are depicted in Figure 2.

It appears that a launch group will consist of ten launch sites with a possible control/support facility collocated with one of the launch sites. However, this cannot be confirmed until a reasonable length of time elapses without additional starts in either launch group. The centrally located sites, D7 and E1, have common characteristics not identified at any of the other sites, and the possible control facility is located at these sites. Sites D7 and E1 each have a triangularly shaped security fence whose orientation and size would accommodate an "L" shaped electronic facility such as that observed at Launch Area K3 at the TIMTC. Each of these sites also has an excavation at a point which would be the approximate position of the intersection of the legs of an "L" shaped electronic facility. No site, other than D7 or E1, has a triangularly shaped security fence or one large enough to accommodate an "L" shaped electronic facility. However, security fencing has not been identified at every site, so it is possible that such a feature may occur in a later stage of construction at other than the centrally located sites. Sites D7 and E1 also have associated support buildings which have not been constructed at any other of the sites. Ditches for probable cabling connects adjoining sites in launch group "D". Figure 3 depicts this ditching as identified on [REDACTED]. Although some of the ditching has been backfilled most of it is still open. Cable ditches terminate near the launch sites, and connections to the silos have not been identified. In most instances the cable ditches appear to be aligned so that the connection will be brought in on the NW side of the silo. A cable ditch pattern has not been identified in launch group E, nor has a cable ditch connection between the two launch groups been identified. Such a connection may be identified in future photography.

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Launch Group D

The launch sites in launch group D are generally alike and observed differences can be attributed to varying stages of construction. Each silo has a level access to the silo which consists of combinations of earth cut or fill depending on the character of the local terrain. Most of these level accesses form a "T" or "L" configuration with the silo in the approximate center of one of the legs. The leg containing the silo is, in each instance, oriented on an azimuth of approximately 20 degrees [REDACTED]. The silos are circular, and have an inside diameter of approximately [REDACTED]. The outside diameter is approximately 35 feet. A small, square, approximately 10 feet on a side, juts out from the NW side of several of the silos. The square is approximately 45 degrees to the left of the azimuth of the leg of the level access containing

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the silo. A small building is associated with each silo. These are in various stages of construction but are all similar and will possibly be alike when completed. The buildings are located an average of 490 feet from the silo. The closest is 445 and the furthest 540 feet from the silo. The building is approximately 35 by 15 feet and has an extension approximately 25 by 10 feet protruding from one end. Small shallow excavations are visible near the building. Details of the sites are depicted in Figure 5.

Launch site D7, which has the colocated possible control/support facility, is similar if not identical to the other launch sites. Only the presence of the possible control/support facilities renders this site different. The site is enclosed by a generally triangularly shaped security fence. Approximately 500 feet northeast of the silo there is an excavation with a structure in it. The distance from this structure to the fence line north of it is approximately 1,350 feet, and to the fence line east of it approximately 1,535 feet. A building measuring approximately 100 by 25 feet is located just SW of the excavation. The building has a 50 by 10 foot extension protruding from its south end. There are five miscellaneous various sized buildings outside the southern perimeter fence. The support facility is located east of the launch site and is comprised of two groups of buildings. One group consists of seven barracks-type buildings. These are connected by a ditch which extends to a point just east of the fence around the launch site. The second group consists of ten miscellaneous buildings of various sizes one of which is earth mounded. In addition a square low earth mound may cover a sub-surface structure. The cable ditch from site D1 terminates near this group of buildings. Details of site D7 are depicted in Figure 4.

Launch group D is, in general, in a mid-stage of construction. Sites D1, D7, D8 and D10 are backfilled and have a low, square, or slightly rectangular cover over the silo which is probably only a protection from the elements. These four sites are probably nearing a late stage of construction.

The cable ditching from adjoining sites stops short of the silos at all sites. An excavation is present on the NW side of all silos except site D7. The excavation may be the point at which cable ditches to the silo will ultimately be brought. Six of the sites, D2, D4, D6, D8, D9 and D10 have small excavations near the silo which seem to cut into the earth fill providing the level access to the silo. These are possibly entrances to the silo or to an unknown underground installation. A review of previous photographic covers does not indicate construction at these points but photo quality prevents stating this with confidence.

Launch Group E

The launch sites in launch group E range from an early stage of construction at possible sites E8, E9, and E10 to a mid-stage of construction at the other seven sites. All are generally alike and observed differences can be attributed to varying stages of construction. All evidence indicates that launch group E will be similar in all respects to launch group D. The centrally located site, E1, is the only site having a fence large enough to accommodate an "L" shaped electronic device. However, fence lines have not been identified at all launch sites so the possibility of additional electronic facilities cannot be ruled out. Sites E1, E2, E3, E4, E6 and E7 all have the characteristic earth fill or cut providing a level access to the silo, which is located in a leg oriented on an azimuth of

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approximately 20 degrees [REDACTED] A silo cannot be positively identified at site E5, however, sufficient signature is in evidence to confirm it as a site. A "T" shaped earth mounded level access for a silo has an excavation in the approximate center of a leg oriented on an azimuth of approximately 20 degrees. An unidentified circular object is adjacent to the excavation and a small rectangular structure is in the excavation next to a vague circular image which may be the silo. Possible sites E8, E9, and E10 do not have signatures, but excavations, ground scarring and general appearance indicate that these are sites. Timing and location reinforce this possibility. Details of these sites are depicted in Figure 7.

The centrally located site E1, like centrally located site D7, has a triangularly shaped security fence whose size and orientation indicate a future "L" shaped electronic facility. The silo is under construction in the SW corner of the secured area, and a rectangular excavation is located approximately 485 feet east of the silo. The distance from the excavation to the fenceline north of it is approximately 1,540 feet, and to the fenceline east of it approximately 1,590 feet. Eight barracks type building, and a separately secured building are located south of, and outside of the security fence. Ground scarring and possible footings indicate additional construction in progress. Details of Site E1 are depicted in Figure 6.

Construction Support Facilities

In addition to typical support facilities normally seen at old ICBM complexes, Launch groups D and E are supported by facilities in the vicinity of launch area C. The facilities in the vicinity of launch area C are considerably more extensive than those usually seen at a type IIIA site. These additional facilities, which include a batch plant, pre-date the single silo launch groups although they have been enlarged since [REDACTED] 25X1D

Comparison of Old and New Complex Support Facilities

The complex support facilities at the single silo complexes are generally smaller than those at the original 18 complexes. Yurya and Verkhnyaya Salda, the two largest complexes, have over 200 buildings and 3 long rail sidings.

The two complexes having the smallest complex support facilities, Gladkaya and Olovyanaya, compare favorably with the facilities found at the 7 new complexes.

Imeni Castello and Uzhur have the largest support facilities at the new complexes each containing about 80 buildings.

Support facilities at the single silo sites have one feature not found at the original complexes. It consists of an area surrounded by a probable board fence and containing about 10 large buildings, a T-shaped building and several small buildings.

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e. Electronics facilities are apparently under construction at all six of the type IIC launch sites. Launch Site C at Aleysk secured by a triangular fence has an excavation that is a probable electronics facility. The other five sites are apparently fenced but only two of these could possibly accommodate an electronics facility and these fences do not have the characteristic triangular shape.

Dombarovskiy launch site B has a probable electronics facility under construction and both are secured by the same triangular-shaped fence. The remaining five sites at Dombarovskiy are enclosed by small fences.

Ineni Gastello has a probable electronics facility at launch site D. Both are enclosed by the same triangular security fence. The remaining five sites have a probable board fence around the immediate site. No other fences are apparent.

A possible electronics facility is in an early stage of construction at launch site A in the Kartaly ICEM complex. This site is enclosed by a small security fence but the excavation for the possible electronics facility is just outside this fence. Two of the remaining sites are enclosed by a small security fence. The other three do not appear to be fenced.

A confirmed electronics facility is associated with launch site B at Uzbur. Four of the sites are apparently secured by a small fence and one site has no evidence of security. The three remaining possible sites are in a very early stage of construction and no security fences are apparent.

Zhangiz Tobe launch site A has a probable electronics facility. Four of the sites are secured by a small fence and the remaining site has no evidence of a security fence.



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