ILLEGIB

25X1

~~TOP SECRET~~

SNIE 11-11-63
1 May 1963

MINICARD COPY

SPECIAL

NATIONAL INTELLIGENCE ESTIMATE

NUMBER 11-11-63

6 JUN 1963

(Supplements NIE 11-3-62 and NIE 11-4-63)

# The Soviet SA-3 Missile System

25X1

S-8949

*Submitted by the*

DIRECTOR OF CENTRAL INTELLIGENCE

*Concurred in by the*

UNITED STATES INTELLIGENCE BOARD

As indicated overleaf

1 MAY 1963

PB
7 Sept 1963



5 Pages

No. 71

~~TOP SECRET~~

25X1

# THE SOVIET SA-3 MISSILE SYSTEM

## SUMMARY AND CONCLUSIONS

A. The United States Intelligence Board has reviewed the evidence available on the Soviet SA-3 surface-to-air missile (SAM) system and concludes that:

1. The SA-3 system probably was designed to provide better capabilities against low-altitude attack than the SA-2 system.

2. However, the nature of the evidence is such that the characteristics of the SA-3 system cannot be determined.

B. Therefore, the judgments expressed in NIE 11-3-62 and NIE 11-4-63[1] pertaining to the SA-3 system are reaffirmed in light of the evidence available to date.

25X1

D. The locations and spacing of deployment sites suggest a relatively short-range system with low-altitude capability. Terrain analysis indicates that the sites are compatible with the low-altitude role.

E. The low-altitude limitation of the SA-2 system leaves a definite gap in the Soviet air defense, which the SA-3 system appears to be designed to fill, at least in part.

F. Classified Soviet documents lend support to the existence of a short-range low-altitude SAM system.

25X1





25X1

25X1

25X1

25X1

## DISCUSSION

25X1
25X1

1. An SA-3 surface-to-air missile (SAM) facility was first observed on TALENT photography at the Kapustin Yar Test Range on [redacted] The first operationally deployed site was identified on KEYHOLE photography of [redacted] and subsequently 47 additional sites have been identified in the USSR (as of [redacted]

25X1
25X1
25X1

2. Lack of firm intelligence on missiles, missile launchers, and associated electronic equipment has precluded estimating performance characteristics for this system, although, based on available evidence, it has been estimated that the SA-3 is probably a low-altitude system. Information considered in this estimate includes: analysis of photographic evidence of the R&D SA-3 site and equipment at Kapustin Yar, low-altitude limitations of the SA-2 system, Soviet documents and literature relating to low-altitude SAM systems, SA-3 deployment patterns, terrain and siting of known SA-3 sites, nuclear association, and possible high-altitude role. These elements are discussed in the following paragraphs.

### SA-3 R&D FACILITY AT KAPUSTIN YAR TEST RANGE

3. Photographic analysis of the SA-3 development area at Kapustin Yar as well as the deployed SA-3 sites reveals that, generally, the spacing between adjacent launch pads as well as the road turning radii are smaller than those for the SA-2 sites. Two missile-like objects which were identified at the SA-3 site at Kapustin Yar were about 20 feet in length as compared with 35 feet for the SA-2 GUIDELINE missile. Although the diameter of the individual SA-3 launch pads is about 50 feet as compared to about 35 feet for the SA-2, the use of a multiple launcher could account for this increased pad size. The above evidence suggests a new system using a smaller missile, probably having a shorter range.

### SA-2 LOW-ALTITUDE LIMITATIONS

4. Soviet documents and clandestine reports which discuss the SA-2 capabilities indicate that the low-altitude limit of the SA-2 system is about 3,000 feet. A few sources indicate 10,000 feet low-altitude limit. In addition [redacted]

25X1

### SOVIET SOURCES ON LOW-ALTITUDE SAM'S

5. Several Soviet sources have mentioned and identified a short-range, low-altitude SAM sytem (other than the SA-2) in the process of deployment at least as early as [redacted] In one case, the utilization of this low-altitude SAM system (ZUR-M) was discussed and it was believed that for the best defense of the USSR the

25X1



25X1

ZUR-M should be included in both point defense (especially for important centers such as Moscow and Leningrad) and peripheral deployment with other systems. This is the manner in which we are seeing the SA-3 deployed. Another source credits the ZUR-M as being effective from about 1,000 to 26,000 feet altitude with a slant range of about 14 nautical miles (n.m.). This source further states that the ZUR-M would replace light AAA. Additionally, a source differentiates between an intermediate range SAM system referred to as the ZUR-S and identified as the SA-2 and a short-range, low-altitude system referred to as ZUR-M. While we cannot confirm that the above intelligence equates the ZUR-M to the SA-3 system, we believe that they are the same system.

## DEPLOYMENT

6. Although deployment of the SA-3 system is not yet complete, what has been observed thus far indicates that deployment is compatible with the concept of defense against an air-breathing threat. Most of the observed SA-3 sites are located within [redacted] or less of known SA-1 or SA-2 sites, suggesting a complementary function. In Moscow, where there are 6 SA-3 sites located on the outer SA-1 defense ring, the distance between sites is [redacted], with one exception where the gap is about [redacted] In other areas, the sites are not as close as this. The Soviet concept appears to be to prevent the breaching of the medium and high-altitude defenses by low-level attack against those defenses and at the same time to provide a low-level defense line on approach routes to the target.

## TERRAIN ANALYSIS OF SA-3 SITES

7. A map analysis has been made of the terrain within a [redacted] deployed SA-3 sites. [redacted] sites contained terrain features which could act as minor masks to interfere with the engagement of low flying targets. In several instances, deforestation and/or raising the antenna height would eliminate or reduce such minor masking. However, even for the SA-3 site with the worst masking [redacted], it was not sufficient to degrade that site as a low-altitude defense. The [redacted] SA-3 site has no mask to interfere with low-altitude defense above 500 feet.

[redacted]

## POSSIBLE HIGH-ALTITUDE ROLE

9. Analysis of data including the deployment pattern does not support the hypothesis that the SA-3 system is a high-altitude system having a 40-50 n.m. range. At the present time there are 13 SA-3 sites deployed in the Kaliningrad area. If a 40-50 n.m. missile were employed there, a 12-fold redundancy of coverage would be achieved. This excessive redundancy of coverage by a 40-50 n.m. system, coupled with the fact that the area has adequate high-altitude protection by a large number of SA-2 sites, seems to negate the role of the SA-3 as a long-range, high-altitude system.