16. (S) **Background**

A truly balanced air defense would include capabilities to defend against all types of airborne attacks, from slow, low-performance aircraft and helicopters operating at extremely low altitudes, through high-performance aircraft operating at low, medium, and high altitudes, to ballistic or guided missiles.

It would include individual and crew-served weapons in the hands of troops, organic air defense weapons systems for the protection of field army forces in the combat zone, a point-defense capability for specific high-value targets that would include weapons systems that were effective at both low and high altitudes, and some form of general overall defense of the "umbrella" type.

At no time after World War II did the U.S. Army have anything even approaching a balanced air defense capability in Europe.

The deployment of U.S. and Allied Nike battalions, particularly the nuclear-capable Hercules version, provided an umbrella defense against high-flying aircraft. Then, during 1959 and 1960, the last of USAREUR's conventional gun and automatic-weapons antiaircraft units had been inactivated to provide personnel spaces for the Hawk battalions that were subsequently deployed. Although the Hawk had been designed to provide an organic air defense capability to protect field army forces in the combat zone against medium-altitude attacks, USAREUR had to commit all its Hawk battalions to area defense roles in the NATO Hawk belt.

Thus, although the U.S. and NATO Nike and Hawk battalions provided an area defense in the range from medium to high altitudes over the entire USAREUR area, from 1960 onward Seventh Army was left without
organic air defense capability\(^1\) except small arms fire — which at best would be effective only against low-performance aircraft and helicopters in the terminal phase of an airborne attack.

The need for more and better weapons was self-evident.

17. (S) New Weapons Systems

   a. Redeye.

   (1) Characteristics. In 1955 a U.S. manufacturer had begun privately and at his own initiative to develop a lightweight air defense missile. In April 1958 the Army had undertaken a feasibility study of the weapons system, and in June 1959 the development contract had been awarded. The weapon, which came to be known as the Redeye, was a manportable, shoulder-fired, surfacetoo-air missile with a conventional high-explosive warhead. Deployed with combat forces in the forward area, Redeye could provide an organic defense against low-flying aircraft at radial ranges of up to 4,100 meters and at altitudes from ground level to 2,700 meters. The missile was a tail-chase weapon with an infrared homing guidance system and, flying at speeds up to 1,100 knots, could engage targets at speeds to 400 knots.

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\(^1\)Theoretically five Hawk battalions would be available to the Seventh Army commander, since they were assigned to Seventh Army and not committed to NATO. Actually, however, they were occupying blocks in the NATO Hawk belt pending the deployment of operational French and FRG Hawk units and probably would not have been available to Seventh Army in an emergency. Moreover, with the Allied Hawk deployments still behind schedule, in October 1968 the U.S. Secretary of Defense decided to formalize the de facto situation and approved the assignment of all U.S. Hawk battalions in the ACE region to NATO command. This decision enabled the United States to recoup construction costs for the battalion facilities under the NATO Infrastructure Program. ([1] Cable ECJN-E-05043, USCINCEUR to CINCUSAREUR, 29 May 68. [2] Cable 9576, JCS to USCINCEUR, 1 Sep 68. [3] Cable ECJN-15640, USCINCEUR to USNFR SHAPE, 14 Oct 68. All SECRET.)

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Deployment. First deliveries of the production models of the Redeye were made in November 1965. Early in 1966 Department of the Army proposed a deployment schedule whereby USAREUR would receive 144 supporting 3-man headquarters sections and 428 trained 2-man Redeeye firing teams; equipment deliveries were to begin in January 1967, and the personnel would arrive from April to December 1967.

USAREUR's organizational concept -- based on the findings of U.S. Army Combat Developments Command (USACDC) studies -- was to deploy a Redeeye section headquarters at each battalion- or squadron-level headquarters. The section, composed of a lieutenant section chief, an E6 section sergeant/deputy chief, and an E3 driver/radio operator, would be equipped with a 1/4-ton vehicle and trailer, an AN/VRC-47 radio for communications within the battalion net, and an AN/GRR-5 radio for communications within the air defense warning net; in addition FM radios would provide communications with the Redeeye firing teams.

One firing team -- consisting of an E5 team chief and an E4 gunner -- would be allocated to each company, battery, or troop; it would normally be employed under the direct control of the battalion Redeeye section chief. However, if necessary the team could also be under the decentralized operational control of the company-level unit it supported. Each team would carry a basic load of six Redeeye missiles and would have a 1/4-ton vehicle and trailer and FM radio for communications with the Redeeye section chief.

Production slippages delayed the originally scheduled deployments, but nevertheless, by August 1968 USAREUR had the allocated personnel and a complete basic load of missiles. Redeeye sections and firing teams were assigned to the four divisions, the Europe-based brigade of the 24th Infantry Division, the two armored cavalry regiments, Berlin Brigade, and the V and VII Corps Artillery. The implementation of the redeployment of forces from Germany (REFORGER) in 1968, by which two-thirds of the 24th Infantry Division and a number of supporting units returned to the United States, reduced USAREUR's Redeeye requirement to 90 headquarters sections and 347 firing teams.

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(1) USAMC Tech Info Rept 21.1.6.1(2), cited above, p. 15. CONF.
(2) USAREUR Arm Hist Sum, 1966, pp. 38-39, 291. TS (INFO used SECRET).
(3) Tab D to DF, DSGOPS to COF(3), 1 Jun 67, subj: Redeeye Command and Control (U). FM 99-10. SECRET (INFO used UNCLASS).

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Command and Control. Although Redeye was not a NATO-committed weapon and was not a part of the integrated air defense system, the Redeye teams obviously had to operate in accordance with SACEUR's overall air defense plans and within the limitations of his rules of engagement and weapons orders.

In the second half of 1967 USAREUR developed command and control procedures for the Redeye units, and in December of that year CINCUSAPE/COMPOURATAC -- in his dual role as U.S. and NATO air defense commander -- concurred in the proposal with a few minor modifications that USAREUR accepted. To assure that Redeye firing teams would be responsive to the weapons control orders issued by the air defense commander through the FOURATAC ADOC and SOC, USAREUR established a communications link from the battalion-level Redeye headquarters sections to the appropriate U.S. air defense battalions. All Hawk and Nike battalions and their associated missile control centers were interconnected for tactical control in an integrated communications net under the SOC. This arrangement enabled the SOC to provide early warning data from the entire NATO warning system to the Redeye elements, and simultaneously guaranteed that the Redeye teams would be responsive to emergency "Hold Fire" orders issued by the SOC to protect friendly aircraft.

Rules of Engagement. USAREUR also established a set of predetermined weapons control categories and definitions to delimit the responsibilities of the Redeye headquarters sections and firing teams. The categories included "Weapons Free," under which the Redeye firing teams were to engage all aircraft in their sector not positively and specifically identified as friendly; "Weapons Tight," when they might engage only targets positively identified as hostile; and "Hold Fire," which would require them to cease firing regardless of enemy action.

In peacetime situations short of reinforced alert or State Scarlet, the "Hold Fire" order would apply unless the unit supported by the team was directly attacked. Upon declaration of reinforced alert or State Scarlet the Redeye teams would pass to a "Weapons Tight" status, with a hostile aircraft being defined as only one that directly attacked.

At the declaration of general alert Redeye teams would pass to a "Weapons Free" status with regard to jet aircraft on tracks from hostile territory toward friendly territory, but only so long as communications remained intact from the Redeye team through its headquarters section to either a divisional air defense liaison officer or to an air defense battalion netted with the SOC. This provision was to guarantee that no "Hold Fire" order issued by the SOC would be violated as a result of

lost communications. When communications were lost, and for jet aircraft on northbound or eastbound tracks, Redeye units would remain in a "Weapons Tight" status even in general alert.

Finally, at the declaration of general alert the definition of hostile also changed automatically, becoming any aircraft that was identified by its shape or markings as belonging to the Soviet Union or Soviet Bloc or any aircraft observed releasing ordnance against any friendly force.

The USAREUR procedures further specified that weapons control orders would be passed to the Redeye headquarters sections over divisional warning and/or intelligence nets (the AN/GRR-5 radio) and passed from the sections to the firing teams via the Redeye FM net.

(5) Tests and Firing Results. The communications system by which aircraft track data were relayed from Hawk battalion operations centers to Redeye headquarters sections for retransmission to the firing teams was tested in Exercise FALLEX in October 1968. The method was found to be highly effective, with track data being available to the firing teams within 2 1/2 minutes of being generated at the Hawk battalions.

The first Redeye live-firing demonstrations were also held in the fall of 1968, demonstrating that the weapon could be employed successfully in the European environment. It was not until the first ASP held in September 1969 that the general effectiveness level of the weapon was demonstrated, however. During the 9-day ASP gunners from each of the 4 divisions fired 7 missiles per division, while those of the 24th Infantry Division forward brigade, the Berlin Brigade, the 2 armored cavalry regiments, and the 2 corps artillery sections fired 2 missiles per unit. Of the 40 missiles fired, 37 were successful hits -- 3 misses resulting from gunner errors and 1 from a missile malfunction. The Redeye system had thus performed with better than 92-percent reliability. These

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6 Incl to ltr, 3d Inf Div to distr, 15 Jan 69, subj: Anx V (Redeye Employment) to 3d Div Field SOP (U). ARTBSC. CONF.

7 USAREUR Anl Hist Sum, 1968, pp. 119, 225-26. SECRET. NOFORN.

8 Cable 261433 Sep 69, CINCSAREUR to CG V Corps, et al. CONF.
results were all the more impressive because none of the gunners had ever before fired a live missile and shortages of XM-49E2 Redeye trainers necessitated the use of available trainers on a rotating basis, whereby each unit equipped with Redeye received five days of centralized training every six weeks.

b. Chaparral/Vulcan.

(1) Background. For many years there had been no significant progress in the development of conventional antiaircraft artillery to match the improved characteristics of high-speed aircraft. In fact, the field army had been left virtually without any defense against low-flying, high-performance aircraft. Studies by the USACDC and the Weapons Systems Evaluation Group, together with the practical experience of the U.S. Air Force and Navy in operations against North Vietnam, had revealed that inherent weaknesses in existing radar systems made possible low-altitude attacks at a relatively low price in aircraft attrition.

In the early 1960's the U.S. Army was looking to the Mauler missile, then undergoing development, as an answer to the low-level threat. Problems with the Mauler system led to the consideration of other means of defense against low-altitude attacks, and as early as the fall of 1963 the Army was reexamining the use of automatic guns in a low-altitude air defense role. The four weapons considered included two Swiss-made systems, the U.S. M42 twin 40-mm gun, and the M61A1 20-mm automatic gun that subsequently was nicknamed Vulcan.

Meanwhile, a number of Army agencies had also investigated the feasibility of adapting air-to-air missiles -- specifically the Navy's Sidewinder and the Air Force's Falcon -- to a surface-to-air role in the field army to cover the existing gap in low-level air defense. In September 1964 the Department of the Army recommended the development of a composite air defense battalion for the field army that would

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9 USAREUR Anl Hist Sum, 1969, pp. 73-74. SECRET (info used CONF).

10 USAMC Tech Info Rept 27.2.2(1), Aug 68, subj: Air Defense System, Vulcan (0), pp. 1-4. CONF.
employ a modified Sidewinder -- known as the Chaparral -- and a self-propelled automatic cannon.

The Secretary of Defense approved a development program in November 1966. USAMC undertook preliminary studies and tests of three of the above-mentioned gun systems, and in December 1965 the Secretary of Defense approved funding for the development of a composite Chaparral/Vulcan weapons system.

(2) Characteristics. The Chaparral was mounted on a 4-launcher pallet that could be carried on a full-tracked vehicle in a self-propelled configuration, or on a trailer for a towed model. It was designed as a fair-weather daytime weapon for employment against helicopters and aircraft operating at altitudes up to 3,000 meters and at speeds up to 600 knots.

The missile had a passive infrared homing guidance system capable of tracking the infrared radiation of the target without further guidance from the ground, thus leaving gunners free to engage other targets immediately after launch. It employed a conventional high-explosive warhead and a proximity fuse.

Target acquisition and tracking were by visual means, and in the self-propelled configuration each 4-launcher vehicle had a 5-man crew consisting of 1 crew chief, 1 gunner, 1 driver, and 2 loader-observers -- each of them cross-trained to perform the duties of all the others. In an emergency a single gunner could operate the system, but two men were required to reload the launchers. In addition to 4 missiles mounted on the launchers, each vehicle could carry 8 missiles with fins and wings removed, and the 5 crewmen could prepare 4 missiles and reload the launchers in approximately 5 minutes. (A smaller crew would, of course, require more time.)

Like the Chaparral, the Vulcan was designed in both a self-propelled configuration -- employing a modified M113 armored personnel carrier -- and in a towed version. The weapon itself was a 6-barreled 20-mm

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12 USAMC Tech Info Rept 21.1.8.1, cited above. Info used CONF.
automatic cannon operating on the Gatling gun principle of rotating barrels to provide an extremely high rate of fire -- from 1,000 to 3,000 rounds per minute.

The Vulcan was a fair-weather, daylight weapon with a maximum effective range of 1,500 meters. In addition to being employed in its primary air defense role against low-flying aircraft at speeds up to 600 knots, the Vulcan could also serve in a ground role against troops and lightly armored vehicles.

The system could be operated by a 3-man crew, although 4 were recommended -- 1 crew chief, 1 driver/radio operator, 1 gunner, and 1 assistant gunner.

Although the system provided only for visual means of target acquisition and tracking, the gun was coupled with an integral range-only radar to assist the gunner in his optical tracking and provide azimuth and elevation leads through a computer. Using this assisted visual method, the gunner could track through 360° horizontally and between -5° and 80° vertically. At the maximum fire rate of 3,000 rounds per minute he could preselect to fire bursts of 10, 30, 60, or 100 rounds.

18. (S) Impact of TAMIRAD and REFORGER

In 1964 the U.S. Army had begun a study of Tactical Mid-Range Air Defense (TAMIRAD) that addressed the overall requirements for a broad spectrum of air defense weapons in Europe. As approved by the Secretary of Defense in December 1965, the TAMIRAD study called for assigning 7 Chaparral/Vulcan battalions to USAREUR, withdrawing 2 of the U.S. Nike Hercules battalions, and redeploying 3 Hawk battalions from the NATO belt to positions in the rear area, where they would augment the remaining Nike units. USAREUR’s contribution to the Hawk belt would thus drop to six battalions, and its coverage of the southern zone that was formerly a French responsibility would no longer be possible.

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14 USAMC Tech Info Rept 27.2.2.2(1), cited above. CONF.

15 USAREUR Anl Hist Sum, 1965, p. 263. TS (info used SECRET, NOFORN).
Although aware of the pending French withdrawal, in May 1966 USAREUR completed a TAMIRAD implementation plan that called for redeploying 3 towed Hawk battalions to the rear area and converting 4 of the 6 battalions remaining in the forward area to a self-propelled configuration.

In 1967 the Hawk battalion in the southernmost portion of the belt was scheduled for withdrawal as a REFORGER unit. However, since the F.R.G. Air Force agreed to deploy the Hawk battalion originally intended for block 55 in the north to cover blocks 41 and 42 instead, the question of coverage in the south became largely academic. The Belgian Armed Forces, in turn, agreed to assume responsibility for the northern half of block 55 -- which straddled the NORTTAG-CENTTAG boundary -- and the overlap of Belgian and U.S. coverage from block 54 was considered to be adequate to protect the southern half of block 55.

Nevertheless, with the REFORGER plan approved for implementation, USAREUR in early 1968 had to revise its plans for deploying the remaining air defense assets -- 6 Mike battalions scheduled for reduction to 4, and only 8 Hawk battalions because of the one redeployed as a REFORGER unit. In developing these plans USAREUR reverted to the priorities that had dominated air defense thinking during the austere 1950's. In 1968 the targets requiring priority consideration for air defense included field army maneuver units deployed in the forward area (to be defended by the Hawk belt); the USAFE strike bases at Spangdahlem, Bitburg, Ramstein, and Hahn; the aerial ports of debarkation -- even more important than previously because of the REFORGER concept -- at Rhein/Main, Wiesbaden, and Sembach; the logistic complexes centered on Kaiserslautern and Mannheim; and such vital facilities as special weapons storage sites, Rhine River bridges, and communications centers.

USAREUR proposed deploying its 4 self-propelled Hawk battalions in the forward area for the dual role of contributing to the NATO belt and protecting divisions, and 2 of the 4 towed battalions in the rear of the forward area adding depth to the belt defense. The other towed Hawk

16 USAREUR Anl Hist Sum, 1966, pp. 289-91. TS (info used SECRET. NOFORN).

17 USAREUR Anl Hist Sum, 1967, pp. 25-26, 316-17. SECRET. NOFORN.

18 The actual redeployment took place from April to September 1968.
TOWED HAWK DEPLOYMENTS (U)

HAWK SITES
TO BE CONTINUED △
TO BE INACTIVATED ⊕

SOURCE: AADEUR 70-75, p. C-4. SECRET-HQFORM.
battalions would be stationed in the rear area to strengthen the air
defense and offset the planned reduction of two Nike battalions. (See
Maps 6 and 7.) For the Nike reduction itself, USAEUR proposed
reassigning batteries among the currently existing six battalions in
such a way as to retain those batteries contributing most to the general
air defense in the four battalions that would remain. (See Maps 8 and 9.)

19. (S) The Chaparral/Vulcan Battalions

a. Stationing Plan. Two of the planned Chaparral/Vulcan battalions
would be in the rear area to complement the Nike and Hawk defense, and
the other four would provide organic low-altitude defense to the divisions.
USAERUs's seventh Chaparral/Vulcan battalion would be part of the REFORGER
division stationed in the United States. The Chaparral/Vulcan units would
be stationed as complete battalions in garrison configuration. The fire
units' defensive positions would be on U.S.-controlled land so as to
simplify siting and improve defense. The initial mission of the units
would be to protect the division march columns during emergency deployment.
The priorities for defending areas would be determined by the division and
corps commanders.

In October 1967 the Department of the Army notified CINCUSAREUR that
the first Chaparral/Vulcan units would deploy in FY 1970. At that time
each battalion was to consist of 1 Chaparral and 3 Vulcan batteries, with
each battery having 12 firing units. To meet emergency defense plan (EDP)
requirements, USAEUR indicated that the first two units should be
divisional battalions deployed to the corps. The 4 individual Chaparral
batteries scheduled to deploy in FY 1970 should be assigned to the 32d
AADCOM, but when the 12 Vulcan batteries arrived in FY 1971, 2 Chaparral
batteries would be redeployed 1 to each of the corps.20 The last two
batteries were to defend the airbase/logistic areas.

In June 1968 the Department of the Army notified USAREUR that the
first units -- a headquarters and headquarters battery and two SP Vulcan
batteries -- were to be activated on 5 May and arrive in December 1968.

19 USAREUR Ani Hist Sum, 1967, pp. 21-44. SECRET. NOFORN.

20 USAREUR Ani Hist Sum, 1967, pp. 31-43; 1968, p. 218. SECRET.
NOFORN.
To permit an orderly integration of the units, USAREUR, V and VII Corps, and 32d AADCOM initiated a detailed study of stationing plans, training programs, facilities, and administrative and logistic support needed for the units.

Meanwhile, in March 1968 the Department of the Army had recommended a mix of 32 Chaparral and 32 Vulcan weapons for a battalion, instead of the 12 Chaparral/36 Vulcan mix proposed by the Office of the Secretary of Defense (OSD). The Department of the Army requested USAREUR's comments on the two plans.

USAREUR replied that the 12/36 mix would not be adequate. This conclusion was based on an established air defense concept in a division area that had a 30-km front and a 40-km depth. The Vulcan would be deployed with a minimum of four fire units per defended target; it was possible that some of the low priority targets could be defended with fewer units, depending upon the combat effectiveness of the weapon. However, even with such reduced weapon deployments, 32 Vulcan fire units could not provide air defense coverage for all divisional area targets.

Nevertheless, USAREUR did not recommend increasing the number of Vulcan units at the expense of the Chaparral, for the guns lacked the kill potential of the missiles. One of the main values of the Chaparral was the low-altitude kill probability against targets at speeds above 400 knots. With too few Chaparral in a defense in depth, there would be undefended corridors in the division, thus opening the rear areas to attack.

Late in July the Department of the Army requested the Secretary of Defense to retain an equal mix of the 2 weapons, but to reduce their number from 32 to 28 per battalion. The OSD decision, announced in November, reduced the number yet further -- to 24 per battalion. The decision required changes in organizational and logistic planning, which meant that USAREUR had to revise its integration study.

b. Firing Ranges. In anticipation of the forthcoming deployment of Chaparral/Vulcan battalions, USAREUR considered its former AAA firing range at Todendorf for firing the Vulcan guns and an Italian firing range on Sardinia for the Chaparral missile ASP. A British missile range in the Hebrides and the NAMFI range at Crete were other possibilities.

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21USAREUR Anl Hist Sum, 1968, pp. 223-25. SECRET.

22USAREUR Anl Hist Sum, 1968, pp. 94-95. SECRET (info used CONF-MOFORN).
NIKE HERCULES DEPLOYMENTS AFTER INACTIVATIONS AND REDESIGNATIONS (U)

NIKE HERCULES SITES

FRANKFURT

HEIDELBERG

KARLSRUHE

2/56

3/71

SOURCE: AADEUR 70-75, p. C-3. SECRET NOFORN

MAP 9
USAREUR and Sardinia ranges were the only viable choices, and in May 1969 the Department of the Army authorized USAREUR to proceed with negotiations for their use. Discussions with P R G officials revealed that USAREUR still possessed range rights for the 1961 turnover of the range to the Federal Republic. All that was necessary was to coordinate US training periods with the Bundeswehr for the use of support facilities at the British range at nearby Ploesti.

The Vulcan firing elements of USAREUR's 1st Battalion, 55th Artillery, USAF B-52s and 52D from Fort Sardinia was to take place in February.
In the extreme forward area a divisional zone defense would be based on four self-propelled Hawk battalions and four divisional Chaparral/Vulcan battalions as proposed in earlier USAREUR deployment plans.

The corps area behind the divisional zone would require two towed Hawk battalions to back up the forward defenses.

Finally, adequate defense of the rear area logistic bases, airbases, and other high-value targets would require 4 Nike Hercules, 3 towed Hawk, and 4 Chaparral/Vulcan battalions.

Accordingly, the total integrated USAREUR air defense force structure should include 4 Nike Hercules, 9 Hawk (5 towed and 4 self-propelled), and 9 Chaparral/Vulcan battalions — or 2 more Chaparral/Vulcan battalions than planned in 1969.

As for deployment, the 4 Nike battalions should remain at the sites programmed for retention after the scheduled reduction (Map 9). Of the 8 in-theater Hawk battalions, 4 self-propelled battalions would be in the divisional zone and 2 towed battalions in the corps zone. The 2 towed battalions in the rear area would be joined by the REFORGER battalion from the United States to make a total of 3 in the rear area in time of emergency (Map 7).

Chaparral/Vulcan deployments would proceed in accordance with existing schedules, and the recommended additional two battalions would deploy in the rear area when available.

b. Implementation.

(1) Nike. As these developments were taking place, USAREUR proceeded to implement the direct reduction of two Nike battalions. In July 1969 USAREUR redesignated a number of batteries so as to retain the most effective batteries in the four battalions that would remain in Europe. Subsequently, one battalion was inactivated effective 26 December 1969 and the second one on 26 March 1970.

25 ADEUR 70-75, cited above, pp. 1-37, Anx A and C, App I-IV to Anx D, and App VIII to Anx G. AEAC-NAA. SECRET. NOFORN.

26 (1) USAREUR Ani Hist Sum, 1969, p. 177. SECRET. (2) Incl to itr, 32d AADCOM to CINCUSAREUR, 1 Sep 70, subj: 1970 Midyear Historical Summary (RCS: AEAC-187[K2]). CONF.
(2) **Hawk.** The conversion of four Hawk battalions from towed to self-propelled configuration was completed in March 1970. One towed battalion redeployed to the rear area in September 1970 and temporarily occupied battery sites vacated by the Nike battalions that were inactivated; the selection of permanent sites for that battalion and for the second battalion scheduled to redeploy to the rear area was underway at the end of 1970.

(3) **Chaparral/Vulcan.** The revised deployment schedules called for two divisional Chaparral/Vulcan battalions to arrive in Europe in November 1969 and March 1970, followed by two non-divisional battalions in May and June 1970. In August 1969 USCINCEUR advised the Joint Chiefs of Staff that it was essential to adhere to that schedule. USAFE, however, regarded airbase protection as more important than any other consideration, and on 6 October proposed that the battalion scheduled for November 1969 be deployed to protect the Nahn-Bitburg-Spangdahlem complex. The second battalion scheduled for March 1970 should move to EDP positions in the Ramstein-Zweibruecken-Kaiserslauern area. With the arrival of the third battalion in May 1970 the second battalion could be released to the 8th Infantry Division at Mainz, and subsequent deployments could then follow the existing deployment schedule.

USAREUR opposed this change in the deployment schedule. On 28 November CINCUSAFFE acknowledged that it was too late to deploy the first battalion to the airbases but requested that the next two battalions be moved there. In late December USAREUR stressed the importance of adhering to the AADEUR 70-75 study recommendations. To achieve the highest overall air defense effectiveness possible, it was necessary to protect each of the three major categories of military assets -- maneuver units, logistic bases, and air strike capability -- for the damage or destruction of any of these assets would seriously hinder the U.S. capability to respond to aggression.

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27. (1) Cable 111845 Feb 70, 32d AADCOM to CINCUSAFFE. (2) Cable 241144 Mar 70, CINCUSAFFE to USCINCEUR. (3) Cable 021114 Apr 70, same to CG 32d AADCOM. (4) Cable 071100 May 70, same to CINCENT. (5) Cable 011725 May 69, USCINCEUR to CINCUSAFFE. (6) Intvw, Mr. Siemon with MAJ Ross, 2 Dec 70. All SECREm. NOFORN.

28. (1) Cable 141050 Oct 69, CINCUSAFFE to DA. CONF. (2) AADEUR 70-75, App VIII to Anx G. SECRET. NOFORN. (3) Cable 271215 Dec 69, CINCUSAFFE to USCINCEUR. SECRET.
The first divisional Chaparral/Vulcan battalion deployed in November 1969 and joined the 8th Infantry Division at Mainz. It was followed in March 1970 by the 3d Infantry Division's battalion, with station at Giebelstadt.

Meanwhile, in January USAREUR prepared a plan for the reorganization of the nondivisional battalions. In contrast to the divisional battalions, which had two 12-weapon Chaparral and two 12-weapon Vulcan batteries, the USAREUR proposal called for nondivisional battalions to have only three firing batteries, each with 8 Chaparral and 8 Vulcan weapons.

Department of the Army approved the concept on 6 February 1970, whereupon USAREUR requested that the two battalions -- which were then in the process of activation and training -- be reorganized and trained in the 3-battery configuration in the United States, even though their deployments would be delayed by three weeks. The battalions were reorganized in March and April; the first deployed in June and occupied battery areas in the vicinity of the Spangdahlem and Hahn airbases, and the second battalion arrived during June and July and moved to firing battery sites at the Ramstein and Zweibruecken airbases and in the Kaiserslautern area.

USAREUR assigned the two divisional Chaparral/Vulcan battalions deployed in September and November 1970 to the 3d and 4th Armored Divisions, with stations at Buenningen and Schwabach, respectively. Since the Department of the Army denied USAREUR's request for two additional nondivisional battalions, there were no further Chaparral/Vulcan deployments to Europe. At the end of 1970 USAREUR was considering other means -- such as Redeye -- to provide the desired rear area air defense, but the concept had not progressed beyond the feasibility study stage.

c. An Effective Air Defense System. On the threshold of the 1970's the United States Army in Europe had, for the first time since the end of World War II, at least the nucleus of a balanced air defense capability.

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29 (1) DF, DCSOPS to DCSLOG, 7 Jan 70, subj: Communications Equipment for Nondivisional Chaparral–Vulcan Batteries (U). (2) Ltr, CINCUSAREUR to DA, 16 Jan 70, subj: Concept for Reorganization of Nondivisional Chaparral–Vulcan Batteries. Both ABAGC-FOE. (3) Cable 27255 Feb 70, DA to CINCUSAREUR. (4) 32d AADCOM Semianii Hist Sum, 1 Jan – 30 Jun 70, cited above. All CONF.

30 (1) Cable 011300 Dec 70, CINCUSAREUR to CINCUSAFE. (2) Intvw, Mr. Siemon with MAJ Ross, 2 Dec 70. Both CONF.
At the company level, small-arms fire could be augmented by the Redeye missile system to give timely protection against low-altitude point attacks of helicopters and high-performance tactical aircraft.

The Chaparral/Vulcan battalions would provide flexible, division-level air defense for maneuver units and would also protect USAFE airfields and Army logistic installations against attacks in the range between the Redeye and Hawk systems.

The eight remaining Hawk battalions, when deployed to more effective firing positions, would represent the U.S. contribution to the NATO belt system and provide medium-altitude defense for rear-area logistic installations and USAFE bases.

Finally, the four Nike Hercules battalions would continue to furnish high-altitude protection.

d. Status of U.S.-NATO Air Defense Relationships. As revised in September 1970, the FOURATAF Emergency Defense Plan (EDP) provided detailed guidance for the employment of all available air defense weapons systems. The general terms of the EDP remained unchanged from earlier versions: Air defense was a national responsibility during Phase A, to include simple alert and State Orange. In the FOURATAF area CINCUSAFE exercised this responsibility. In wartime (Phase B) COMFOURATAF would assume responsibility and exercise operational control through his air defense operations center (ADOC), while tactical control would be exercised through the Allied sector operations center (SOC). 31

The EDP established weapons control procedures to facilitate the transition from peace to war, generally repeating the previously described SACEUR rules of engagement for Phases A and B. Only the SOC could declare an aircraft hostile and order engagement in these phases, although units under direct attack could, of course, defend themselves. At the declaration of general alert the SACEUR rules of engagement ceased to apply, and FOURATAF's "hostile criteria" came into effect. The hostile criteria defined hostile aircraft as those exceeding a ground speed of 200 knots on a westerly heading (181° through 359°) and not displaying proper identification friend or foe (IFF) and selective identification feature (SIF) mode and code; aircraft on a similar westerly heading and employing electronic countermeasures (ECM) while not displaying proper IFF/SIF mode and code; or those declared hostile by COMFOURATAF -- a declaration that might be applied to specific aircraft or to all aircraft in a specified

31 Anx A, Concept of Operations, to FOURATAF EDP, Vol V, 1 Aug 69 (w changes to Ch 5, 1 Sep 70), pp. A-1 to A-4. 4ATAF/16540/69. NATO SECRET (info used SECRET).
PHOTO 8: Self-propelled 20-mm Vulcan
Within those general criteria more specific instructions were provided for the operations of various weapons systems. Thus, for SAM units the EDP established so-called "engagement zones" -- the high missile engagement zone (HIMEZ) being from ground level to 100,000 feet and assigned to Nike units, with the "middle" engagement zone (LOMEZ) assigned to the Hawk in the range from ground level to 45,000 feet. Where a LOMEZ and HIMEZ overlapped, the LOMEZ would extend only to 10,000 feet and the HIMEZ would begin at that level instead of at ground level. The zones were not predetermined but could be activated, deactivated, and shifted to fit the needs of the battle by COMPOURATEAPF or the Sector Commander. Upon activation of the weapons engagement zones, SAM units would not engage any targets outside of these zones unless the SOC assigned a specific target to a specific fire unit.

Another restriction was that in Phase A only U.S. or U.K. SAM units might engage targets over the Federal Republic of Germany; in Phase B and after declaration of general alert the SAM units of all nations could engage targets in accordance with FOURATAPF's hostile criteria. 33

The EDP also established similar criteria for light antiaircraft artillery (LAA), which included the Chaparral/Vulcan and Redeye in addition to conventional 20-mm and 40-mm automatic guns, .50 caliber machineguns, and other light weapons.

Normally organic LAA units would not be integrated into the NATO air defense system because of the insufficiency of communications needed to control them effectively. Accordingly, while remaining under national operational and tactical control, the LAA would have to operate under the restrictions of predetermined hostile criteria and engagement procedures, and they would have to be responsive to weapons control orders issued by the SOC. The three control orders were LAA Tight, under which only a target positively identified as hostile or committing a hostile act could be engaged; LAA Free, in which all targets at altitudes up to 12,000 feet except those specifically identified as friendly would be engaged; and LAA Hold Fire, a temporary order to be issued to protect a specific target or area, but which did not preclude defense against an actual attack.

32 Anx D to above EDP, pp. D-1 through D-6. Info used SECRET.

33 App I to Anx A and Anx G to EDP cited above. Info used SECRET.
When an LAA unit had no communications with a NATO air defense control facility, the following rules of engagement applied:

In peacetime, up to the declaration of general alert, LAA Tight would apply unless aircraft were observed committing a hostile act, to include airdropping or airlanding troops. After general alert any aircraft recognized by its configuration as being of Soviet Bloc origin, or any aircraft releasing or preparing to release ordnance, would be considered as hostile. LAA Free would apply to such aircraft and also to any jet aircraft heading from east to west, but in the latter case only if the engaging unit had communications with its parent command. When such communications were lost, LAA Tight would apply to east-to-west jet flights, and the same order would apply to all jet aircraft flying from west to east, to all propeller-driven aircraft regardless of heading, and to jet aircraft flying from east to west when close air support missions were being conducted in the area.

When the LAA unit had communications with a NATO air defense control facility, the above restrictions would still generally apply, except that the unit also would be responsive to any specific weapons orders issued by the SOC.

21. (S) Proposed Transfer of Air Defense Responsibilities

Soon after the basis for a balanced air defense in Europe had been established, other considerations threatened to upset the balance before it was fully attained.

As part of REDCOSTE, a plan to reduce military costs in Europe by streamlining and consolidation actions, four Nike Hercules and four Hawk battalions were to be turned over to the Federal Republic of Germany. In August 1969 the Department of Defense directed USEUCOM to develop, in coordination with the U.S. Embassy at Bonn, the details of a proposal to offer initially only USAREUR's remaining four Nike Hercules battalions. The rationale behind the offer would be that the defense of national airspace was a natural function of sovereignty and that the Federal Republic should acquire additional Nike equipment to improve its air defense capability. To preclude speculation over further U.S. troop withdrawals from Europe, the other NATO Allies would be informed that this turnover of equipment was part of a long-range program designed to rationalize the U.S. and F.R.G. contributions to the overall defense of Federal German territory.

34 Anx H to EDP cited above. Info used SECRET.

35 (1) Cable 12307, USCINCEUR to USNME SHAPE, 20 Aug 69. (2) Cable 211158 Aug 69, CINCUSAEUR to Comdt USAADS, Fort Bliss, Texas. (3) Cable 13587, USCINCEUR to CINCUSAEUR, 11 Sep 69. (4) Cable 240740 Oct 69, CINCUSAEUR to USCINCEUR. (5) Cable 18006, USCINCEUR to ANEMB Bonn, 2 Dec 69. All SECRET. NOFORN.
By December the Departments of State and Defense had agreed to expand the original proposal by offering four of USAEUR's eight Hawk battalions. USAEUR did not consider the Hawk a suitable weapons system for transfer to F.R.G. control. The Nike Hercules, operating from fixed facilities in a high-altitude area defense role, was capable of protecting civilian population centers as well as purely military targets, so that its transfer to the Federal Republic was entirely logical as a contribution to the air defense of sovereign national territory. The Hawk, by contrast, was a mobile tactical weapon designed to protect field army forces; its transfer to foreign control would not be appropriate.

However, if the offer was to include the Hawk battalions, several critical problems would have to be resolved: For one thing, under the balanced air defense projected by the AADEUR 70-75 study, two of the Hawk battalions in question were to redeploy to the rear area to provide terminal phase point defense of the vital airbases and logistic complexes. Any transfer agreement would have to ensure that the F.R.G. would respect these stationing requirements.

In addition, the F.R.G. national Hawk program was itself incomplete, with only five of nine scheduled battalions deployed and operational; the remaining battalions would not be deployed before 1973, and it thus seemed unlikely that the Federal Republic could assume responsibility for the four additional battalions that USAEUR was to transfer. Training problems and difficulties in obtaining and keeping qualified personnel would prevent the Bundeswehr from expanding its Hawk program so rapidly.

Finally, if the Federal Republic accepted the offer of Hawk, the overall personnel problems in its Armed Forces would probably result in a shift of personnel space authorizations from the F.R.G. Army to the Air Force, which manned all air defense units. Such a shift would mean a decrease in F.R.G. ground combat capability in order to maintain -- not increase -- the existing level of air defense. However, because of the difficulties experienced by the Federal Republic in meeting its existing air defense commitments, USAEUR doubted that the Hawk units could maintain their level of effectiveness after a transfer of equipment, so that both the air defense and the ground combat capability would be seriously impaired if the proposed transfer was accepted.

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Despite the USAREUR position, preliminary discussions between U.S. and F.R.G. representatives began in mid-1970. No substantive agreements or decisions had been reached by the end of the year.  

37 Intvw, Mr. Siemon with LTC D. A. Greene, C/Air Def Sec, ODCSOPS Arty & SW Div, 2 Dec 70. SECRET.