

Missile Firing Termed Success

1972



NIKE HERCULES LIFTS OFF PAD.

USA Photo

OSAN AB, Korea (Special) — The first Nike-Hercules missile firing test in South Korea in its surface-to-surface role has been termed highly successful by the 38th Artillery Brigade (Air Defense).

The firing was performed by Delta Battery of the 4th Bn., 44th Air Defense Arty., during the 38th Arty. Brigade's current annual service practice.

The missile, in a fiery thrust of power, lifted off its launcher at the 8th Army Special Sea Range, then was directed down range at tiny Huk To Island, 58 kilometers away in the Yellow Sea.

The Sea Range, situated about 40 kilometers north of Kunsan on Korea's western coast, is operated by the 38th Brigade each autumn for live firings by its HAWK and Hercules missile battalions.

Maj. George Bristow in describing the pin-point accuracy of the Hercules firing, said: "The missile was targeted at the center of the island and impact was approximately 20 meters from the left of center."

Brig. Gen. Ernst E. Roberts, commanding general of the air defense brigade, said Nike-Hercules, although the oldest missile system in the Army's inventory, "continues to demonstrate consistently high performance."

The general added: "Although Hercules was not optimized to be fired in a surface-to-surface role, it has proven to be one of the most highly effective surface-to-surface delivery means ever developed by the U.S. Army."

Roberts said the Hercules, primarily designed to counter the medium to high altitude bomber threat, "provides the field Army commander with an extra de-

gree of flexibility not normally enjoyed."

Bristow described the island target for this month's historic firing as a "small rocky island approximately 300 meters long and about 200 meters wide."

The accuracy of the shot, he said, was "verified by an Air Force Forward Air Controller, who surveyed the island after the impact."

Delta's Battery Commander, Capt. P.J. "Jeff" Garrison, served as Battery Control Officer during the record firing. Actually firing the missile from the launcher area was SGT. Dale F. Scheniah.

Bristow said the brigade's recommended target was cleared through official Republic of Korea channels.

He said the island target was "reconned by the ROK Air Force prior to firing to insure that no personnel were on or in the vicinity of the island."

"It was not a canned mission," he said. "The battery was given the map coordinates simulating a fire mission having been received from a field commander."

The 38th Brigade's six-week ASP will continue through November.

The brigade includes three Hawk battalions and the world's largest Hercules battalion.

USED FC 1020

NEWER TDU

file

DISPOSITION FORM

(AR 340-15)

AUTHORITY: AMSMI-SC -431-67

REFERENCE OR OFFICE SYMBOL

SUBJECT

AMSMI-SMECG

Trip Report to San Francisco, California

THRU AMSMI-SMEC
THRU AMSMI-SME

FROM Kenneth W. Bahr

DATE 9 OCT 1966

CMT 1

TO AMSMI-SM

1. Place Visited: San Francisco, California (Defense Area)
2. Authority: AMSMI-SC-431-67
3. Date of Departure: 30 August 1966
4. Date of Return: 23 Sep 1966

(AN/TSQ-51 WAS LOCATED ON THE AIRFORCE SITE (ADCAP) ATOP MT TAMALPAIG. IN PUTS FROM THE A.F. RADARS)

5. Purpose of Visit: To assist AMSMI-DSI in the field acceptance test of the AN/TSQ-51 equipment.

6. Personnel contacted:

ANY BODY REMEMBER THESE MEN??

- Capt Hare - Operations Officer AADCP
- Joe Talmadge - AMSMI-DSI
- Lt Bush - SF-87
- Lt Anderson - T-86
- CWO Garrison - T-10
- Lt Johnson - SF-51
- CWO Pisz - SF-88
- Floyd Randall - Presidio Support Shop
- C. W. Sims - AMSMI-SMPTD
- Phil Blood - Hughes Aircraft Company

MY OLD BOSS 1954-59

THE AN/TSQ-51 (2 VANS) REPLACES THE OLD BIRDIE - MISSILE MASTERS, ECT,

THE AN/GSA-77 (BTE) BATTERY TERMINAL EQUIP MOUNTED IN A DIRECTOR STATION REPLACES THE OLD "FUJIF" i.e. TSQ-8 ECT.

THE TWO MAJOR ITEMS TALK TO ONE-ANOTHER (51 & 77)

7. Discussion:

The initial purpose of this trip was to monitor the installation of the AN/TSQ-51 equipment in the San Francisco Defense area and to become familiar with the new equipment and any integration problems with the Nike Hercules systems.

During the first week, a considerable number of minor problems were experienced with the TSQ-51. Mostly card failures and/or computer programming. The most time consuming problem was with the servo platform, in which synchro B-6 had a bad bearing that would freeze up at times and stall the servo system.

Upon completion of the operation checks on the four (4) consoles and a sneak preview of integrating with several fire units, it was determined that the TSQ-51 equipment was not working correctly when integrated with SAGE/BUIC. These problems being primarily in the communications (telephone lines). It was also discovered that the required BIRDIE/TSQ-51 transfer switch was not installed in the telephone rack room, which constituted some delay during installation.

OVER

DA FORM 2496 1 FEB 62

REPLACES DD FORM 96, EXISTING SUPPLIES OF WHICH WILL BE ISSUED AND USED UNTIL 1 FEB 63 UNLESS SOONER EXHAUSTED.

19 OCT 1966

I-SMECC

SUBJECT: Trip Report to San Francisco, California

Due to the computer access time frame with SAGE/BUIC system (0900-1230), little time remained each day for individual fire unit checks which in general came off okay. The FUIF (TSQ-8) and Hercules performed quite well with only a few operator type problems occurring.

In addition to the check lists for the TSQ-51, a check sheet was also provided for the firing battery. These checks were nothing more than a compliment to the daily acquisition presentation and system acquire checks followed by a back-to-back check with the TSQ-8 equipment. Therefore, these checks were not performed by the provided criteria due to the fact that they were previously covered during the routine second echelon system checks and adjustments. However, occasionally I would request that a quick back-to-back check be performed to confirm the condition of the equipment at the time prior to the integration checks.

The only area for concern and improvement was in the Hercules ± 250 volt references. The provided check criteria required that the ACQ and COMP references be 250 volts ± 4 and balanced, and that the ACQ referenced be balanced against the COMP references to within ± 1 volt. On a majority of the systems, the ACQ voltages are within one volt of 250. However, the COMP references are 3 to 4 volts low, but still balanced. The Hercules system would operate under these conditions provided that the PPI presentation was aligned against the FUIF symbolgy. Therefore, with a low COMP reference voltage, the presentation scale factor would be changed from the nominal .0156 volts per symbol yard to something less. The Nike reference protector circuit in the TSQ-8 has to be adjusted to the nominal Nike reference magnitude for continuation of data transmission to the AADCP when ever the fire unit plate volts are turned off. The problem is that a spread of a possible eight (8) volts could exist between the ACQ and COMP references.

In order to obtain the COMP references, a considerable number of OB2 tubes have to be tried in the V4 and V6 circuitry of the GS-15548 regulator. To correct this problem, an adjustment should be provided on this regulator for adjusting the output of the -250 section.

It was also noted that the criteria for balancing the ± 250 ACQ reference is a non-periodic and should be considered at least a monthly. Also criteria should be added to balance ACQ against COMP.

By Sep 22, all but two fire units had been finalized. SF-51 was having micro-wave problems, but looked good otherwise, SF 93 operational except final video correlation had not been checked.

Due to domestic reasons, I left the TDY area 23 Sep and returned to duty station. Project was finalized at COB on 23 Sep 66.

file

THE UNTOLD STORY ABOUT CLOUDCROF SHOT

Ref Five Feb 1976. HERCULES S.S.

In February 1976 I accompied Mr Jim Easterling (carried his briefcase) to a meeting at Ft Bliss. Jim was one of our R&D men in support of the Eng Suport Contracts MICOM had with Western Electric. Jim had never been close to a real HERCULES before so Col.Harris, ADA, arranged for a VIP tour at the range for a morning shot on 5 Feb. We were located close to the action and it was a good launch.

When we went to the IFC, we were told that the missile had fail-safed and fell into the desert ect. However, no one down range saw it or knew where recovery was ect. Some one reported to hear a BOOM! which lead Range Command to beleive all was normal ect, ect, ect.

When Jim and I arrived at our motel later that day, we were met by a MP and Mr Russ Reynolds (Western Rep) and asked that MICOM accompany them to an impact area. A chopper from Biggs took us and part of another team up to new Real Estate development area in Cloudcrof. Just outside of the NE corner of FT Bliss.

The team confirmed that it was a HERCULES missile that had plowed into the back of a dirt berm that the construction people had made to protect/store dynamite. The dynamite did not explode. However, the missile exploded and caused some damage to the Real Estate club house just a few yards away, breaking some windows and causing a County Deputy Sheriff to run through a glass door, receiving some cuts. At the time there were a few people attending a sales pitch. All very lucky!

That BOOM that was heard by someone on the range came from an Alamogordo jet that was taking pictures?

A big law suit evolved from this, but that is another mater.

The problem within the computer was THEN found to be the cause. Western Electric came up with a hardware change which MICOM installed on 21 April 76.

KEN

NEWS PAPER ACCOUNT ON BACK

5 FEB 1976

Missile Misses, Damages ^{82K yds} NM Homes

A Nike-Hercules missile fired Thursday from McGregor Firing Range missed its intended target and impacted in a rural area in southeastern New Mexico, causing minor damage to three homes, a U.S. Army spokesman said Saturday.

The erratic missile exploded about one and a half miles outside the boundaries of the McGregor Range Complex, about 30 miles south of Cloudcroft, N.M., according to Lt. Col. Vince Carafano, Ft. Bliss public information officer.

Carafano said an unidentified man was cut on the foot by flying glass but that he did not require any medical treatment. He said the injury was bandaged and that the injured man "didn't have to go to a doctor."

The identity of the injured man was unavailable Saturday.

Army officials blamed the missile's erratic flight on the "apparent in-flight failure of a guidance component" of the missile and said an investigation is being conducted to determine the specific cause of the missile's "erratic behavior."

Carafano said an investigation team visited the impact site Friday and also surveyed damage to the residential structures. He said the damage to the homes was "very minor, essentially glass blown out by the blast effect."

He also said it is a "very rare occurrence" for a guided missile to become erratic during flight and leave the range.

TRIP REPORT

SUBJECT Trip Report		DATE OF REPORT: 25 May 76
SUBMITTED BY: KENNETH W. BAHR		ORGANIZATION: DRSMI-NEAG
PLACE VISITED: Ft. Bliss, TX and McGregor Range, NM		
AUTHORITY: DRSMI-NC-1008-76, dtd 14 May 76		
DEPARTURE DATE: 18 May 76	RETURN DATE: 21 May 76	
PURPOSE OF VISIT: Technical Support of HERCULES Surface-to-Surface Hardware Changes		
PERSONNEL CONTACTED: LTC Martin, LAO LTC Adamson, SMR COL Harris, ADC Ft. Bliss		
MAJ Utley, 62d ADA CWO Insel, 62d ADA T. R. Reynolds, WECO		
Bob James, TECOM		
DISCUSSION OR DETAILS OF VISIT: I arrived at Ft. Bliss, 1230 hrs, 18 May 76, and made required entry visits to both LAO's, after which time I proceeded to Abernathy Park to check on the LOPAR magnetron life tests being conducted. On 12 Jan 76, a late version of the Raytheon 5795 was installed to collect life test data. The first failure occurred 17 May 76 (Ser # B1950A from Lot 7549) after 1384 filament hours and 31 HV hours. So far, these tubes have lasted very well with nominal operation. I relayed this data to Mr. Muzzie at the Directorate for Product Assurance who will retrieve this tube for analysis at a later date. I visited Mr. James (Air Defense Board) and discussed pending problems with the HERCULES system at the Site Monitor. Presently, availability of LOPAR maggies is such that test programs (TSQ-73 & Blink Scan) are being affected. I finalized arrangements for having four (4) maggies (questionable from bad filament lot) to be provided to them at no cost due to expected short life. Item manager is shipping these on an 09 priority. This should get them through the crucial timeframes. <u>The initial purpose of this trip was to observe the HERCULES SS shots and to gather what data I could relative to forthcoming hardware changes and/or operational procedural changes. The two WSLR (White Sands Long Range) shots of 20 and 21 May were near perfect with unofficial miss distances under 100 meters. The MRSR (McGregor Range Short Range) hit 9.2 meters short in range, on in azimuth.</u> Western Electric has been collecting data on all shots to feed the simulation program. Data collected so far has been very beneficial and indicates several areas within the computer that could be improved (steering velocity channels are at/near limits). It is also feared that the additional noise that is expected to be injected into the computer as a result of <u>D/A conversion (Angle Encoder interface)</u> will make the acceleration and velocity determination circuits completely out of tolerance. It is also felt that the <u>TDU (Target Data Unit)</u> meets all expectations and provides the accuracy needed. However, the physical placement of this control box should be looked at again. Presently, it is located on the center door of the event recorder cabinet and mechanically interferes with the loading/operation of the recorder. WECO said that a change will be made prior to ECP submission. It has also been reconfirmed that a slight servo jump occurs when caging (locking) TTR SS coordinates. The error varies from system to system and is another good reason why the TDU should be deployed to provide the TTR coordinates and to maintain the		

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