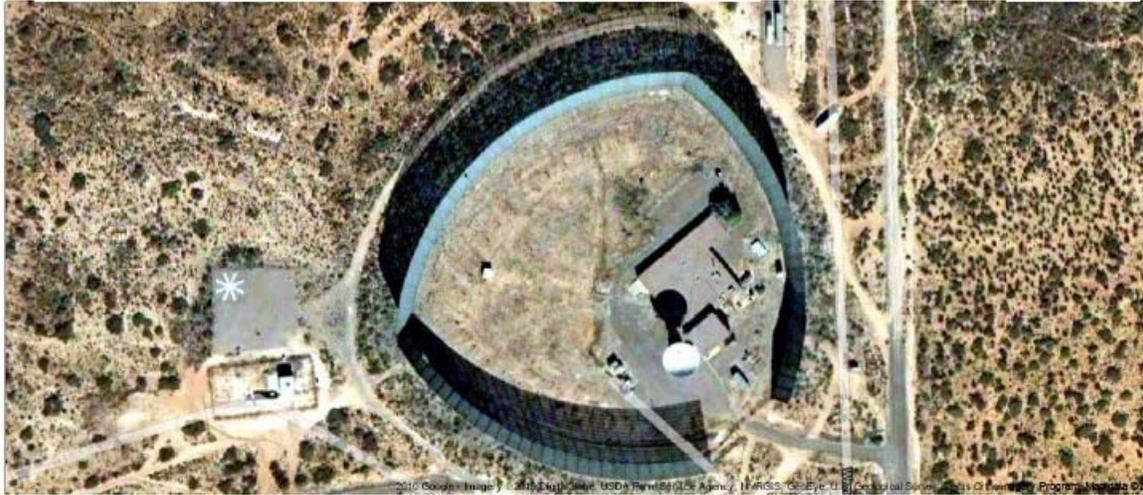


Target 100525



AMRAD Radar Antenna, WSMR
(32° 31' 27.08" , 106° 8' 33.19")



RAM Radar Antenna, WSMR
(32° 30' 42.93" , 106° 10' 29.64")

(WSMR – White Sands Missile Range)

Excerpt below taken from "Hands Across History", Vol. V, Letter I, February, 2009

Way Back When

What Is That Elephant Fence For?

Editor's Note: One of the common questions we used to field in Public Affairs was about the two huge pens out in the desert near the Orogrande gate. On a clear day they were visible from Highway 70 and other spots in the basin. Some thought they were for UFO research while others thought they housed big animals. Doyle explains their use.

By Doyle Piland

From the WSMR Museum Archives

Drive out Nike Avenue to the eastern edge of the missile range and turn left just before the Orogrande gate. Drive approximately 7.5 miles and turn left for another 2 miles. You come to a complex with a large dish type radar antenna inside a very high fence. There is also a building outside the fence with a large dish type radar antenna beside it (see photo below). If there is anyone around, it would be unusual. Well, that's not the way it was Way Back When....

The radar inside the fence was called RAM and the one outside was called RAMPART. The buildings, fence, and antennas are still there today. All radar equipment has been removed from the buildings. These two radars were part of the Air Force Advanced Ballistic Reentry Systems (ABRES) program.

The more familiar part of the ABRES program was the Athena missile. The Athena was a multi-stage solid-fueled rocket (see photo at right).

The Athena was launched from a White Sands operated launch complex at Green River, Utah. It was typically flown with four solid-propellant rocket stages with two additional solid-propellant boosters strapped to the first stage that ignited simultaneously with the latter. The first two stages lifted the rocket to an apogee between 125 and 185 miles. After that, the Athena pitched down and the remaining stages accelerated the re-entry vehicle towards the denser atmosphere

to a speed of up to 22,000 feet per second and would impact in the southern part of White Sands Missile Range.

See ICBM Simulation, page 5



The Air Force Athena Missile sits on its rail ready to launch from Green River, Utah.



The RAM radar antenna and building inside the fenced area and the RAMPART antenna and building outside.

ICBM Simulation

With a flight lasting only four minutes and going to a maximum distance of about 470 miles, the Athena could realistically simulate a 25 minute ICBM mission across 5,000 miles. The USAF launched more than 140 Athenas between 1964 and March 1977, testing reentry technology for the Titan, Minuteman, Polaris, and Poseidon missiles. The fiery nighttime reentry of the Athena provided a spectacular display as it streaked toward impact with the desert floor a little northwest of the RAM and RAMPART Radars.

To track and evaluate the characteristics and performance of the various reentry technologies being tested, a sophisticated S-band radar system, named RAMPART, and a UHF and L-band radar system called RAM were installed near the impact area on the southern end of the range. A similar UHF/L-band system that included a VHF measurement capability was installed at Stallion at the north end of the Range to provide high-aspect-angle data.

Now, while the Air Force was primarily interested in measuring the characteristics and performance of their equipment, other agencies, in particular the Advanced Research Projects Agency (ARPA), were also interested in information that could be used in dealing defensively with enemy reentry vehicles. Because the Special Test Vehicle program offered ARPA an excellent chance to test their “ARPA Measure-

ments Radar” (AMRAD) and its discrimination techniques, White Sands was selected as the site for that radar.

The AMRAD was located approximately 2.1 miles east-northeast of the RAM-RAMPART complex. AMRAD was built by the Raytheon Corporation to Lincoln Laboratory specifications. It was an L-band system with a sixty-foot dish (see photo below).

In addition to the radars discussed above, there were other radars that also participated in the ABRES activities in support of ARPA. The Target Tracking Radar and Discrimination Radar from the cancelled Nike Zeus program, the Multifunction Array Radar (MAR), part of the Nike X program, and the “Hard Point Defense Array Radar” (HAP-DAR) installed in the Nike Zeus Acquisition Radar Receiver Building, another ARPA project, were all used to various degrees. There was also a large dish radar antenna a little south of Highway 70 just before the turnoff to what was then MAR site (now HELSTF), which most likely played some roll in this programs as well.

Since the radar buildings of the RAM, RAMPART, and AMRAD had large Radio Frequency (RF) shielded rooms, they are very useful to other agencies such as the Survivability/Lethality Analysis Directorate (SLAD) and the Nuclear Effects Facilities of the Material Test Directorate and have been in intermittent use for many years. But, there isn't near the activity and excitement that there was Way Back When...



The ARPA Measurements Radar (AMRAD) located about 7.75 miles north of Nike Ave. on the eastern edge of White Sands Missile Range.