



Hands Across History



A joint newsletter for the White Sands Historical Foundation and the White Sands Pioneer Group.

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November 2021

Bob Lipinski Inducted Into Hall Of Fame

Retired Army Colonel Robert H. Lipinski was inducted into the White Sands Missile Range Hall of Fame on Oct. 27. Current WSMR commander, Brig. Gen. Eric Little, presided over the ceremony that was held during a luncheon co-hosted by the White Sands Historical Foundation at the missile range's Frontier Club. He is the 56th member of the hall of fame which dates back to 1980.

The luncheon was limited to 50 attendees by a recent Department of Defense order which meant

28 people with reservations had to be uninvited. That was the only hiccup in the event. It resulted in some government personnel who worked with Lipinski being unable to attend. However, he was surrounded by his family who traveled long distances to celebrate with him.

Bob was honored because of his extraordinary 35 years of service to WSMR as an Army officer, a contractor, and as a community volunteer in several organizations to include the Foundation.



The Lipinski family poses behind a cake decorated in Bob's honor and presented by the WSMR Historical Foundation. From left to right: Chris Keith, Robin Keith (Lipinski), Mary Jo (Bob's wife), the inductee, grandson Brett Lipinski and his parents Bridget and Brett. Photo by Vanessa Flores, WSMR Public Affairs Office.

Additional Photos From The Hall Of Fame Induction



Top left, Bob Lipinski and Brig. Gen. Little unveil the framed photo and certificate that will hang in the hall of fame in the White Sands Museum. Above, Bob and the CG pose with the certificate that accompanies the flag which is being presented in the photo to the left. The flag was flown from the headquarters flag pole in honor of Lipinski's induction. Photos by Vanessa Flores.

Statement of Purpose and Membership

The "Hands Across History" newsletter is published by the White Sands Missile Range Historical Foundation and the White Sands Pioneer Group (WSPG). Both nonprofit organizations aim to preserve the accomplishments of White Sands Missile Range.

The newsletter is intended to keep

White Sands Pioneer Group
P.O. Box 171
White Sands, N.M. 88002

members of both groups informed about current events and share information of common interest. The editor is Jim Eckles. He can be contacted by email at nebraska1950@comcast.net or at either address below.

Membership to either organization is open to anyone who shares their goals.

White Sands Historical Foundation
P.O. Box 171
White Sands, N.M. 88002

In 1970 An Athena Missile Went Deep Into Mexico

By Jim Eckles

EDITOR'S NOTE: This is a highly abridged version of what appears in "Pocketful of Rockets."

On July 11, 1970, Athena missile number 122 was launched from Green River, Utah, in the middle of the night. Like the previous firings, which the Air Force began in 1964, this Athena was programmed to impact on White Sands Missile Range. Instead project and range personnel watched helplessly as it rocketed south heading deep into Mexico.

In fact, the missile went so far south, radars lost the vehicle as it descended over the horizon and, at first, officials were not sure where it struck.

This international incident was made worse when it was soon revealed that the Athena "reentry vehicle" carried two small containers of cobalt 57, a radioactive element. To top it off, the Mexican government quickly reminded the United States about the Pershing missile fired from Blanding, Utah, in September 1967 that crashed just across the border in Mexico south of Van Horn, Texas.

At 50 feet tall and 16,000 pounds, the Athena was assembled as a subscale model or simulator for an intercontinental ballistic missile (ICBM). The Air Force used it to study reentry characteristics of warheads and other space vehicles. Going this route saved the Air Force money and allowed them to collect high-quality data from the land-based instrumentation at White Sands. Full-scale testing was done at sea. The Navy was even involved as the flights provided information for their Polaris missile program.

The missile's four stages burned solid propel-

lant. The first two stages were used to push the Athena to an altitude of about 200 miles. As the vehicle coasted, computers reoriented the final two stages so they were pointing down and toward White Sands. Once this was accomplished, stages three and four fired in sequence to shoot the reentry vehicle back through the atmosphere at speeds of 15,250 miles per hour – that's 4.25 miles per second.

They experimented with different shaped reentry vehicles and different materials to protect them. Their goal was to make the warhead survivable and invisible. Also, they brought the reentry vehicles in at different angles to see what difference that made.

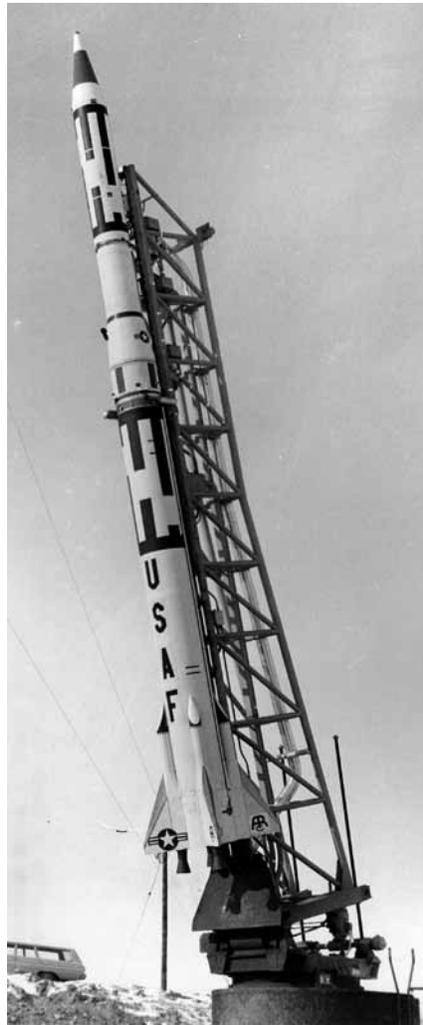
The Green River launch complex was built to accommodate the Athena program with the first launch in 1964 and the last in 1973. A total of 141 Athena missiles were fired. Green River was also used for Pershing launches.

Other land acquired for the testing included booster drop areas south of Moab, Utah and near Datil, New Mexico. In addition, the two ABRES (Advanced Ballistic Re-Entry System) call-up areas on the west side of White Sands were established for the incoming missiles - in case they fell short.

To collect the data for these tests, a huge array of instruments, especially radars, was needed. Decades after these tests, the clutter fences shielding two of

the radars still provoke questions like, "What is the elephant fence for?"

Clutter fences prevent signals from the edges of the radars from bouncing back from nearby



An Air Force Athena Missile on its launch rail at Green River, Utah. WSMR photo.

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objects like hills and buildings. Stray returns can confuse and complicate the position calculations.

In the southeast corner of the missile range, just north of the Orogrande Range Camp, radars and associated clutter fences were put in place. The RAMPART (Radar Advanced Measurement Program) and RAM radars were erected and used by the Air Force to collect data on their Athena reentry vehicles coming through the atmosphere. The RAM, with its 84-foot diameter antenna, sits inside a clutter fence just over 100-feet high. The fence's circumference is 2,200 feet.

According to Colonel Len Sugerman, head of the Air Force's Inland Range Field Office at White Sands, the fence gave researchers almost 10 additional seconds of "clean" data from each test. Sugerman was on hand to insert the last bolt in place when the fence was completed in Dec. 1969.

The RAMPART radar is outside the fence with the RAM slaved to it. It was needed to direct the RAM radar to acquire the vehicle to be tracked. RAM generated a very narrow pencil-like beam for precision tracking and was virtually useless in finding a small object in the big sky. Once it was locked on the object, the RAM provided excellent tracking out to a thousand miles.

The RAM radar was also used for Pershing and Navy sounding rocket shots.

At the same time, other organizations were interested in defending against incoming ICBMs so they piggybacked on the tests to see what kind of radar signatures they could collect during the different shots. Also they wanted to see if they could tell the difference between a real warhead and a decoy.

The Advanced Research Projects Agency (ARPA) built the AMRAD (ARPA Measurement Radar) just to the east of RAMPART. This radar had a 60-foot diameter antenna with a 104-foot-high clutter fence stretching around a 2,000-foot perimeter.

On a clear day, these clutter fences are visible from San Augustin Pass on U.S. Highway 70, almost 30 miles to the west. They look like large buildings. It isn't until you get much closer that you recognize them as just very big fences.

Athena #122 was scheduled to launch at 2:40 a.m. according to news releases sent out by White Sands prior to the test. Area residents around Green River and Moab would often stay up late or get up early to watch the Athena and Pershing fireworks provided by White Sands.

There also were fireworks on the WSMR end. See Pat Quinlan's account in the April 2005 issue of this newsletter at: <https://wsrmuseum.com/hands-across-history-newsletters/>

According to a historical summary of this flight from the Air Force Systems Command, "An inflight malfunction, fourth stage motor ignition on V123D, caused both stage four and the payload to fly off course; for ignition of the fourth stage occurred prior to mid-course guidance maneuvers and provided a range extension of approximately 400 (nautical miles) and subsequent impact in Mexico."

Although the missile appeared in the wrong spot in the sky, Quinlan pointed out that the range systems did exactly what they were supposed to do. As the Athena emerged from the plasma cloud, telemetry signals started arriving. The data was processed and used to aim the narrow band radars so they could track the missile until it disappeared over the horizon. This information was used afterwards to forecast where the Athena should have impacted.

Of course, the big question was, "Where is it?" There was some speculation the nosecone could have burned up on reentry and never hit the ground. For the first day or so, the newspaper stories reported officials saying it probably came down in a "remote mountainous area 150 miles south of Juarez."

Carlos Bustamante, who was working as the project engineer for SRAM (Short Range Attack Missile) in the National Range, got a call in the middle of the night from Austin Vick telling him to pack his bags, he was going to Mexico. Vick was with the Plans and Operations Office at the time and knew about Bustamante's background.

It turns out Bustamante was uniquely quali-

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fied to be on the team that went to search for the Athena. Earlier Bustamante worked as a project engineer for Athena and was involved in the selection of Green River as the launch site. So he knew the Athena program, he knew how White Sands worked, and he was fluent in Spanish.

Bustamante joined a small team led by Lieutenant Colonel Lowell (Buzz) Knight. The team's instructions were that they were on their own and Bustamante was the only one authorized to speak to the Mexican officials about the program and their efforts.

By the time the group left on July 16, the data reduction folks calculated that the Athena was 450 miles into Mexico in a south-southeast direction in the area of the boundary between Durango and Chihuahua. The team flew down in two small contracted airplanes while others drove two vehicles down for their use. They established a base in Torreon, the largest town in the area. They expected to be done in four days.

It turns out that the team ran into bureaucratic difficulties and looking for the impact point was like trying to find a needle in a haystack. This was even though Air Force specialists refined the data and said it would be in an area 1.5 miles long and only half a mile wide. However, they couldn't place that rectangle on an exact spot on a map.

The terrain is open desert and mountainous with very few people. The team flew aerial searches day after day. They took reports from anyone in the area who might have seen or heard something. They landed on back roads and pastures to interview ranchers.

According to Bustamante, the aircraft got quite a workout. The planes were flown by former Navy carrier pilots whose flying skills were perfect for searching empty desert. He said if anyone on board saw something in the desert below, the pilots had a knack for making quick tight turns and returning them to the exact spot for a second look. It was like searching over the ocean.

By the first of August, after days of searching, they still had not found the nosecone. On Aug. 2 the nosecone was finally found using a specially

equipped aircraft from the Atomic Energy Commission operated by EG&G Inc. The plane was equipped with a scintillometer and a spectrum analyzer calibrated for cobalt 57. It was called ARMS, an acronym for Aerial Radiological Measuring System. It only took them three days to locate the package.

Since the cobalt sources were described as "two small pellets imbedded in tungsten" this was an impressive display of technology by EG&G.

Bustamante said his ground team then followed directions radioed from the plane to get to the general area. For the last dash cross-country, they followed a trail of flour sacks dropped from the plane to the impact site. What the WSMR team found was a small crater area with just a few pieces of metal and some contaminated sand.

Bustamante's team and the Mexican scientific team measured the radiation levels all around the site and found it to be about six tenths of a millirem per hour – just about what the levels are at Trinity Site today.

At this point, Bustamante said he thought the whole thing was over. They found the debris from the nosecone and the radiological source (they never did find the third or fourth stages of the Athena). The radiation levels were very low and very isolated. Both parties thought they would fill in the hole and that would be it.

However, a few days later officials and radiological teams from higher levels of both governments showed up at the site and the situation changed. They confirmed the initial readings, but after lengthy negotiations the Mexican government requested the site be reduced to a radiation level of one half a millirem or less.

What followed next were several more weeks of negotiations between the two governments on how to accomplish the recovery. The basic premise was that personnel from the U.S. would travel to Mexico to remove most of the contaminated dirt and bury the rest.

Every detail was talked about and planned. The folks in Washington prepared contingency

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news releases based on vehicle accidents and other vague possibilities.

There were many restrictions. For instance, the team had to travel by train and all military markings had to be removed from the railcars and the earth moving equipment sent down.

The train consisted of three Pullman-type cars to house the personnel, one dining car, three boxcars, nine flat cars for heavy equipment, two water tankers and a fuel tanker. It left Orogrande late on Sept. 23 and was timed to clear customs in Juarez just after midnight on Sept. 24.

The recovery operation was dubbed “Operation Sand Patch” and was commanded by Colonel Thomas Kearns.

The train arrived at its destination on a siding at Carrillo, Mexico, about 4 p.m. on Sept. 24. From Carrillo the team would have to travel just over 20 miles cross country each day to get to the crash site. At the time Carrillo was a tiny community of about 100 souls with very few modern conveniences. The only electrical power came from a small generator used by a salt company outside of town.

The men ate breakfast and dinner in the train’s dining car and had lunch delivered to the site. They slept on the train.

On the 25th, team members unloaded equipment and started building a road to the crash site. Then heavy rains hits them and delayed work. Eventually, after several days, it quit raining and they were able to move back and forth to the site. The loading of

barrels with contaminated soil was completed on Oct. 1, late in the afternoon. Sixty drums of soil were prepared for shipping plus three 19-gallon drums containing protective clothing, rubber boots and gloves.

The news reports of how much soil was being removed were greatly exaggerated. One newspaper stated that 200,000 tons of dirt would be shipped out. Some very low-level radioactive soil was buried in two trenches, but basically the contamination was no deeper than a few inches across the site.

Once the barrels were back at the train it took a few days to clean and load everything. But there was a problem. They were too good at their jobs and finished early. The Mexican government wouldn’t let them leave until the agreed upon date.

That left the team with some time to do work for the Carrillo community. They bladed streets, reinforced the check dam above the town, and worked on the water system.

The train finally left Carrillo just after midnight on Oct. 5. It hit the Juarez railyard about 4 p.m. and was immediately sent on. By Oct. 7 the operation was complete at a cost of \$104,000.



WSMR personnel seal and then clean the drums of contaminated sand to be shipped back to the missile range. After 10 generations, the sand was then dumped into the desert near the old Nuclear Effects Lab. WSMR photo.

Going, Going, Gone....

These are views looking west up Goddard Ave. in the WSMR housing area. This is where the VIP housing was located - the von Braun house and

others. As you can see, they are now gone. There are no plans right now to replace them. From those of us who worked out there a long time, expect dust in April. Photos by Scott Stearns, WSMR Public Affairs Officer.



White Sands Missile Range Historial Foundation
Hands Across History
P.O. Box 171
White Sands, NM 88002

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Missile range personnel and technicians from Mexico conduct the final radiological survey of the Athena crash site near Carillo, Mexico. WSMR photo.