

# Nuclear Missile Accident 1964

## Details Released After 53 Years

Bob Hicks was spending a cold December night in his barracks 53 years ago at Ellsworth Air Force Base near Rapid City when the phone rang. It was the chief of his missile maintenance team, who dispatched Hicks to an incident at an underground silo. “The warhead,” the team chief said, “is no longer on top of the missile.” Hicks eventually learned that a screwdriver used by another airman caused a short circuit that resulted in an explosion. The blast popped off the missile’s cone —the part containing the thermonuclear warhead —and sent it on a 75-foot fall to the bottom of the 80-foot-deep silo.

The courageous actions Hicks took that night and over the next several days were not publicized. The accident was not disclosed to the public until years later, when a government report on accidents with nuclear weapons included seven sentences about it. The report listed the accident as the nation’s first involving a Minuteman missile. Fifty-three years after he responded to a nuclear-missile accident near Vale, Bob Hicks returned to the site of the former accident and also visited the Minuteman Missile National Historic Site near Wall.

Further details were reported publicly for the first time, drawn from documents obtained through Freedom of Information Act requests by the Rapid City Journal and others, and from Hicks himself, who is now 73 years old and living in Cibolo, Texas.

When Hicks was sent to the accident on Dec. 5, 1964, he was only 20 years old, and the cryptic statement from his team chief was the only information he was given.

“That was enough to cause me to get dressed pretty quickly,” Hicks recalled.

The trouble began earlier that day when two other airmen were sent to a silo named Lima-02. It was 60 miles northwest of Ellsworth Air Force Base and 3 miles southeast of the tiny community of Vale, on the plains outside the Black Hills.

Lima-02 was one of 150 steel-and-concrete silos that had been planted underground and filled with Minuteman missiles during the previous several years in western South Dakota, where the missiles were scattered across 13,500 square miles. There were hundreds more silos in place or soon to be constructed in North Dakota, Missouri, Montana, Wyoming, Colorado and Nebraska, eventually bringing the nation’s Minuteman fleet to a peak of 1,000.

The original Minuteman missiles, called Minuteman I, were 56 feet tall and weighed 65,000 pounds when loaded with fuel. The missiles were capable of traveling at a top speed of 15,000 miles per hour and could reach the Cold War enemy of the United States, the Soviet Union, within 30 minutes.

Each missile was tipped with a thermonuclear warhead that was many times more powerful than either of the two atomic bombs that the United States dropped on Japan during World War II. One government agency reportedly estimated that the detonation of an early 1960s-era Minuteman warhead over Detroit would have caused 70 square miles of property destruction, 250,000 deaths and 500,000 injuries.

The two airmen who visited the Lima-02 silo on Dec. 5, 1964, were part of a young Air Force missile corps that was responsible for launching and maintaining the missiles. The two airmen's names are redacted — as are many other names — from an Air Force report that was filed after the accident.

At noon that Saturday, the airmen received orders to troubleshoot and repair the Lima-02 security system. They made the long drive and arrived at 2 p.m.



**In this Sept. 27, 2017 photo, Bob Hicks looks at the unarmed Minuteman missile in the Delta-09 silo recently at the Minuteman Missile National Historic Site near Wall, S.D. The silo looks much the same as a former silo near Vale that Hicks entered in December 1964 as part of the response to an accident. An explosion popped off the missile's cone —the part containing the thermonuclear warhead —and sent it on a 75-foot fall to the bottom of the 80-foot-deep silo.**

The rectangular, north-south aligned, 1-acre silo site was surrounded by a chain-link fence that was topped with strands of barbed wire. The unremarkable-looking place consisted mostly of a flat expanse of gravel. Toward the south end were several low-slung tops of underground concrete structures.

One of the structures was a 3 1/2-foot-thick, 90-ton slab that covered the missile and would have been blasted aside during a launch. A couple of paces away from that was a circular, steel-and-concrete vault door, about the diameter of a large tractor tire. The door concealed a 28-foot-deep shaft leading to the underground work area known as the equipment room.

Working in 24-degree conditions above ground, the airmen began a series of steps with special tools and combination locks that allowed them to open the massive vault door. Next, they climbed the ladder down to the equipment room, which encircled the upper part of the silo and missile like a doughnut.

The airmen worked in the roughly 5 feet of space between the steel launch tube and the equipment-room wall, among racks of electronics and surfaces painted mostly in pale, institutional green. Though the launch tube was between them and the missile, the missile was not much more than an arm's length away.

According to the Air Force report on the accident, one of the airmen removed a fuse as part of a check on a security alarm control box. The report said the airman was "lacking a fuse puller," so he used a screwdriver to pry the fuse from its clip.

When the fuse was re-inserted, the report said, it was supposed to click. The sound of a click indicated good contact with the holder. But there was no click, so the airman repeated the procedure. Still not certain he heard a click, he pulled the fuse out a third time and pushed it back into the holder again.

"At 1500 hours MST," the report said, referencing 3 p.m. Mountain Standard Time, "simultaneously with the making of this contact, a loud explosion occurred in the launch tube."

Hicks arrived at the silo later and heard a simpler story from his team chief. According to that story, it was merely the removal of the fuse with a screwdriver — not the insertion of the fuse — that caused the problem. Hicks said the metal of the screwdriver contacted the positive side of the fuse and also the fuse's grounded metal holder, causing a short circuit that sent electricity flowing to unintended places.

"It would be just like you taking your car battery and you touch a screwdriver to the positive terminal on the battery and you touch the frame of the car," Hicks explained. "You have just put voltage potential on your entire car."

Hicks and the accident report agree that the wrong tool was used. In the language of the report, "The technician did not use the authorized, available tool to remove the fuse."

The resulting short circuit might not have been problematic had it not been for some wiring in one of the missile's retrorockets that was later found to be faulty. According to Hicks, some weakly insulated or exposed wiring may have been in contact with the metal casing of a retrorocket, allowing for a jolt of electricity that caused the retrorocket to fire.

The retrorockets were housed below the cone of the missile. They were supposed to fire when the missile was in outer space, to separate the third and final fuel stage from the cone, allowing

the cone and its warhead — which were collectively called the “re-entry vehicle” — to fall toward the target.

When one of the retrorockets fired inside the missile in the Lima-02 silo, pressure built up in the space where the retrorockets were housed, and the cone of the missile — which was about 5 feet tall, nearly 3 feet in diameter at its base, and about 750 pounds in weight — burst off and fell down in the few feet of space between the missile and the silo wall.

The cone hit the wall of the silo, bounced back toward the missile and grazed it in two spots along the second fuel stage, hit two of the three suspension cables that supported the missile, and finally crashed to the concrete floor of the silo and came to rest on its side. Luckily, the cone did not do enough damage to the missile to cause the missile to explode.

Neither of the airmen immediately knew what had happened. The bureaucratically written accident report said they “expeditiously evacuated” after hearing the explosion, as the silo filled with gray smoke.

In later years, Buddy Smith, who now lives in Texas and is a friend of Hicks, received training about the South Dakota accident before working in the missile fields of Wyoming.

“I wasn’t there,” Smith said of the explosion, “but I know there were two technicians who ruined their underwear. ‘Cause that ain’t supposed to happen.”

Bob Dirksing, who was Hicks’ roommate at Ellsworth and now lives in the Cincinnati area, said the two airmen who were in the silo when the explosion happened were lucky to survive.

“It could’ve been a lot worse,” Dirksing said. “If the short had gone to the missile instead of to the retrorockets, it would’ve been a completely different story. I’m sure there would’ve been fatalities. The boys who were down there would’ve been fried.”

The explosion triggered a flurry of activity over the next seven hours. A potential “broken arrow” was declared, which is military-speak for an accident involving a nuclear weapon. A strike team was deployed to set up a 2,000-foot cordon around the silo, including a road block. Medics were dispatched to the scene. Three sergeants were flown in by helicopter.

The sergeants went down to the equipment room after the smoke cleared and made two observations: Everything was covered in gray dust, and the missile was missing its top.

A radiation-monitoring team went down next and did not detect alarming radiation levels but did find the missile’s cone, which contained the warhead, damaged and lying at the bottom of the silo.

By about 10 p.m., the scramble to assess the situation was over. Nobody was injured. The missile was slightly damaged but otherwise intact. The warhead was safe inside its cone, although the cone was damaged. And except for some Vale-area residents who probably saw the commotion and wondered what was going on, the public knew nothing.

The emergency was over, and it was time to plan a salvage operation. Sometime before midnight at Ellsworth, the phone rang for Bob Hicks.

Hicks had enlisted less than two years earlier as a skinny, 6-foot-tall, 19-year-old farm boy from Somerset, Texas, a small town about 20 miles south of San Antonio. He was the youngest in a family of 13 children, which included six boys who served more than a combined 90 years on Air Force active duty from World War II to Vietnam and beyond.

After basic training, Hicks had been sent to nuclear weapons maintenance school in Colorado. By October 1963 — eight months after his enlistment — he was installing warheads and guidance packages atop Minuteman missiles in the silos of western South Dakota.

The silos had been rushed into existence after a groundbreaking ceremony in 1962, with Americans still reeling from the shock of seeing the Soviets launch their Sputnik satellite in 1957. If the Soviets could put a satellite into orbit, American leaders reasoned, it would not be long until they could launch a missile on an arcing path through outer space to the United States.

When Hicks got the call about the accident on Dec. 5, 1964, he and another airman jumped into the specially equipped truck-and-trailer rig that they typically used to transport warheads. They sped into the night, traveling on the newly constructed Interstate 90 toward Sturgis. It wasn't long before Hicks had to pull over when he saw a state trooper's cruiser lights flashing in his rearview mirrors.

“He said, ‘Ya’ll seem to be in a hurry,’” Hicks recalled.

Hicks did not divulge that he was en route to a potential nuclear disaster, and the trooper inquired no further.

But the trooper did mention some smoke emitting from one of the rig's wheels. Hicks and his companion traced the problem to some bad brake hoses. They made an impromptu fix and sped off again toward Sturgis.

After passing through Sturgis and heading east, Hicks steered the rig north around the hulking, dark mass of Bear Butte and motored across the quiet countryside to Vale before finally reaching the silo.

There were perhaps a dozen people at the scene.

“As we later joked,” Hicks recalled in his slight Texas drawl, “They were standing around not knowing whether to scratch their watch or wind their butts.”

According to Hicks, the missile had not yet been rendered safe, and his team chief said somebody had to do it. Hicks volunteered.

When he saw the missile was fully upright, Hicks was relieved. If it had fallen against the silo, the missile might have been weakened to the point of a collapse and explosion. But that disaster had been avoided.



**In this Sept. 27, 2017 photo, Bob Hicks stands in the equipment room that encircles the launch tube and unarmed missile in the Delta-09 silo, which is part of the Minuteman Missile National Historic Site near Wall, S.D. The silo looks much the same as a former one near Vale that Hicks entered in 1964 while responding to an accident.**

Incredible as it may sound to a civilian, Hicks said he spent no time worrying about the thermonuclear warhead. He had been convinced by his training that it was nearly impossible to detonate a warhead accidentally. Among other things, he said, the warhead had to receive codes from the launch-control officers, had to reach a certain altitude, and had to detect a certain amount of acceleration and G-force. There were so many safeguards built in, Hicks later joked, that a warhead might have been lucky to detonate even when it was supposed to.

That's not to say his trip down the silo was without danger. The missile, which contained a load of fuel, had been grazed and damaged by the falling cone. And with only a few years of history behind the Minuteman missile program and no known nuclear accident involving a Minuteman until the one Hicks was confronting, he was heading into the unknown.

Nevertheless, he climbed down the shaft and into the equipment room that encircled the upper part of the underground silo. Next, he lowered the so-called "diving board," which extended from the launch tube toward the missile and allowed Hicks to essentially walk the plank at a height of about 60 feet above the silo floor.

He also installed a work cage, which was a man-sized steel basket that could be hung from motorized cables on the inner wall of the launch tube. The cable assembly not only moved the cage vertically but could also move horizontally on a track around the launch tube, allowing airmen to access every part of the missile.

Hicks maneuvered the cage down the side of the missile and started the procedure to "safe" it. At each point between the missile's three fuel stages, Hicks inserted a long metal rod with a socket-

like head and turned the rod to break the electrical connections between the stages, rendering them incapable of firing.

With the missile “safe,” it was time to figure out what to do about the warhead.

Hicks said there was a particularly high-ranking officer at the scene who had been flown in by helicopter. After Hicks had rendered the missile safe, Hicks came back to the surface and heard the officer asking some other men how to retrieve the warhead.

Hicks heard no response, so he piped up. Cargo nets were sometimes used to move heavy equipment in and out of the silo, he said. He suggested that a net could be lowered to the bottom of the silo, and the cone with its warhead could be rolled into the net. The net could then be hoisted up on a cable by a crane.

The officer did not appreciate the boldness of Hicks, whose rank was airman second class.

“He said, ‘Airman, when I want an opinion from you, I’ll ask you,’” Hicks recalled.

Hicks retreated to his truck and awaited further orders. Later, Hicks said, he was recalled to the officer’s side and asked to explain the idea again.

The cargo-net method was eventually chosen as the plan, but Hicks said the Air Force wanted the procedure to be practiced in another silo. The practice proceeded over the next couple of days.

Following the practice, the operation was green-lighted, and a crew assembled at Lima-02 on Wednesday, Dec. 9, 1964 — four days after the accident — to retrieve the damaged missile cone and its thermonuclear warhead.

First, some jagged edges on the cone that were caused by its violent separation from the missile were covered in padding, and the cone was hoisted about a foot off the silo floor while a mattress pad was slid underneath it. Next, two cargo nets, which were layered one on top of the other under the pad, were pulled up around the cone and hooked to the cable.



**Flame and smoke trail from the Air Force's Minuteman Missile as it leaves launch pad at Cape Canaveral, Fla., Feb. 1, 1961.**

Then began the painstaking process of raising the cone up out of the 80-foot-deep silo, in the few feet of space between the missile and the silo wall, without hitting the missile and causing an explosion. The crane did the lifting, but three men also held tight to a hemp rope that was connected to the cone in case of any problems with the crane, cable or net.

“Up very slow,” reads a portion of a minute-by-minute account of the operation, as printed in the later accident report. “Dead slow. Stop. Up very slow. Stop. Up slow. Stop.”

And on it continued like that for about two hours until the cone emerged from the silo late that afternoon. The cone and its inner warhead were placed on top of some mattresses, Hicks said, in a truck-and-trailer rig. There the cone and warhead sat overnight, in the trailer.

The next day — Thursday, Dec. 10 — a convoy assembled to escort the truck to Ellsworth Air Force Base. According to Hicks, he drove the truck, in part because nobody else at the scene seemed to know how.

The warhead was eventually transported to Medina Annex at Lackland Air Force Base in San Antonio for disassembly. The written record is not as clear about the fate of the missile, but the accident report indicates it may have been removed from the silo the next day, Friday, Dec. 11.

Also on Dec. 11, 1964, the Air Force appointed a board of officers to investigate the accident. The board filed its report seven days later, on Dec. 18, and listed “personnel error” as the primary cause. The report said the cost of the damage was \$234,349, which would equate to about \$1.85 million in inflation-adjusted 2017 money.

Large sections of the report’s findings and recommendations are redacted, and the non-redacted portions do not disclose the fate of the two airmen who were at the silo when the explosion happened.

Several months after the accident, in March 1965, Hicks was selected as the maintenance man of the month for his division. A short article about the honor in the base newspaper did not disclose that a missile accident had occurred, but it vaguely referenced Hicks’ role in rendering a missile safe and transporting “damaged components.”

That same month, Hicks was awarded an Air Force Commendation Medal for acts of courage. The written citation with the medal briefly summarized the accident and the role Hicks played in responding to it.

“By his personal courage and willingness to risk his life when necessary in the performance of dangerous duties,” the citation said, in part, “Airman Hicks has reflected credit upon himself and the United States Air Force.”

The accident did not scare Hicks away from dangerous jobs. Shortly after receiving his medal, he trained in explosive ordnance disposal and was eventually sent to Guam during the Vietnam War, where he disarmed and extracted bombs that failed to release from B-52 planes.



Hicks went on to work for the Office of Special Investigations, which is the Air Force equivalent of the FBI. He retired from active duty during the 1980s and was hired to work as a civilian agent for OSI until his final retirement in 2005. Along the way, he and his wife, Janet, had two sons.

The missile silos in western South Dakota were decommissioned following the 1991 signing of the Strategic Arms Reduction Treaty by the United States and the Soviet Union. By 1996, all but one of South Dakota's silos had been imploded. The last remaining silo, called Delta-09, is now host to an unarmed missile and is part of the Minuteman Missile National Historic Site, which includes three attractions spread out along Interstate 90 east of Wall — the silo, a preserved launch-control center called Delta-01, and a visitor center.

The former Lima-02 silo site near Vale has passed into private ownership and is now home to a honey-extracting business. The fence that formerly surrounded the silo complex is still there, kept intact by the landowner.



**In this Sept. 26, 2017 photo, Bob Hicks stands at the former site of a nuclear missile silo near Vale, S.D., where he responded to an accident in 1964. None of the accidents suffered by the nation's nuclear-weapons program has ever caused a nuclear detonation. That there was not a detonation at Lima-02 in 1964 is an indication of the safety and reliability of the Minuteman missile program, according to Hicks, who did not sour on nuclear weapons after the accident.**

Although South Dakota's Minuteman missiles now belong to history, the United States still has 400 Minutemans ready to launch from silos in North Dakota, Montana, Wyoming, Colorado and Nebraska. Each of the missiles is a Minuteman III — two generations advanced from the Minuteman I that was in the Lima-02 silo in 1964.

The Minuteman III fleet is just one part of the U.S. nuclear-weapons triad, which has 5,113 nuclear warheads in all, including some in storage and others that are deployed and ready for use from land, sea or air.

To opponents of nuclear armament, that's a lot of accidents waiting to happen. The U.S. government has officially acknowledged 32 accidents involving nuclear weapons since the 1950s, while additional accidents, incidents, mishaps and close calls have been uncovered by journalists and activists.

And accidents continue to happen. In 2014, three airmen were conducting maintenance on a Minuteman III missile at a silo in Colorado when an accident caused \$1.8 million worth of damage to the missile — roughly the same amount of damage, taking inflation into account, as the 1964 accident in South Dakota. The few known details of the 2014 accident were revealed only after persistent requests for information from The Associated Press.

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Hicks views the nuclear triad as a necessary and effective deterrent against attacks from nations such as North Korea, whose leader Kim Jong Un is provoking worldwide anxiety about his development of nuclear weapons.

As the future of nuclear weaponry unfolds, the world may need more unflappable people like Hicks, who considers himself lucky rather than unfortunate to have been called to the site of a nuclear missile accident.

“A career is made up of opportunities,” Hicks said. “Being in the right place, at the right time.”

[Source: Rapid City Journal | Seth Tupper | November 4, 2017 ++]