# Minuteman Missile National Historic Site

# Audio Tours of the Delta-01 and Delta-09 sites

## Stop 1

We begin outside the gate at Delta-09. Hello, my name is Bret Whitmore. I am a U.S. Air Force Cold War Veteran. I guarded this site (among 149 others), serving in the 45th Missile Security Squadron from 1982-1985. I'll be your guide as we explore Delta-09.

Before you enter the gate, pause and look back at Interstate 90.

For nearly 30 years, South Dakotans and other visitors just like yourselves traveled 1-90, never realizing they were crossing a war zone. With the advent of intercontinental ballistic missiles, or ICBMs, the front lines of the Cold War were everywhere, not just behind the 'Iron Curtain'.

Imagine you were one of those travelers and had glanced at the fence and the strange structures inside it. Was it a water well or perhaps a local power substation? One could assume so at a glance, but in reality, this site had a more ominous role. Where you are now standing was ground-zero for World War Ill.

We're cleared for entry. Step inside Delta-09 and learn how one of the most powerful weapons in history stood in silent vigil just beneath this lonesome stretch of prairie.

## Stop 2

Let's walk to the center of the fenced area. Take a moment to look around you and absorb the seemingly endless expanse of prairie. Most of western South Dakota is sparsely-inhabited ranch country. As far as the eye can see, there are grasslands stretching toward a vast horizon.

Remoteness was key to the United States Air Force basing the Minuteman here and in five other missile fields. There are no large cities in this part of the country. Planners thought that this low population would limit casualties in the event of a nuclear war, as the presence of missiles made this area a primary target.

Missiles were also based here due to the relatively close proximity of northern-tier states to the Soviet Union. A missile launched from Delta-09 could soar straight over the North Pole and strike targets deep within central Russia. Minuteman II had a maximum range of over 6,000 miles, putting almost all Soviet targets within reach.

## Stop 3

Minuteman facilities were designed to withstand the nuclear environments produced by a near miss from an attacking warhead detonation. The operation of the Minuteman depended on a second strike capability. This means that the system must be able to function even after exposure to a hostile nuclear environment. The design of the silo and its support facilities reflect this hardened design in many ways, including the steel launch tube liner that provided electromagnetic shielding and prevented damage to the missile from surface erosion and from flying chips of concrete at launch.

Before we visit the silo, make a perimeter scan inside the fence. The United States Air Force called this 1.6 acres of gravel, concrete, and steel a "Priority Area". This was one of ten sites under command of Delta-01, and when all systems were functioning properly, this site was unmanned. With solid fuel technology, the missile could lie dormant for weeks, months, or (theoretically) even years with limited maintenance and upkeep. Launch Officers at Delta-01 monitored these sites remotely via multiple sensors and miles of underground cables. Minuteman was America's quickest-responding ICBM. From the moment the capsule received a valid launch order-and completed a checklist-guided key-turn procedure-it could take as little as one minute for the missile to fire.

Only when the missile or its silo needed maintenance, or when its intrusion detectors noted an alarm, was Delta-09 ever manned. As so complex a system as Minuteman aged, this became more frequent. Daily, five or more missile sites of the 150 total in the Wing required scheduled repairs of some kind. That's when Minuteman's three interdependent support organizations-Operations, Maintenance, and Security-worked in close harmony to secure sites and get them back on-line for constant alert.

Let's now head to the glass enclosure over the silo itself.

## Stop 4

Below us is a Minuteman II training missile standing in launch configuration. Minuteman was a technological wonder for its day; a 3-stage, solid-fueled, sub-orbital spacecraft nearly 60 feet tall and weighing 38 tons. Its combined engines produced over 235,000 pounds of thrust that propelled its payload to a speed of 4 miles per second. Inside the nose (Reentry Vehicle) was a Whiskey-56 thermonuclear warhead that produced an explosive yield of 1.2 megatons, more than 80 times more powerful than the Hiroshima bomb.

And yet: this missile was just one of 10 in Delta Flight, and there were 15 missile flights of 10 missiles each in the 44th Missile Wing, dispersed across 13,500 square miles of western South Dakota. This was only one of six Minuteman wings providing deterrent coverage of 1,000 ICBMs throughout the U.S.

If this weapon had been launched, the following would happen: The missile combat crew at Delta-01 would, upon proper orders, send a launch command to the missile's computer. Underground cables connected the control center to the ten silos of its flight. This command was received through the umbilical on the side of the missile. After processing this command, the umbilical detached. Next, ballistic gas generator detonations would forcefully slide this massive 90-ton door covering the silo through the fence, out of the way. The first stage would ignite, a roar of hellfire erupt, and within three seconds the missile would leap skyward, bound for its target half a world away.

After launch, each of the three stages burned for about one minute each, and after the third stage separated, the warhead could reach over 15,000 miles per hour. At such speeds the missile could strike a target over 6,000 miles away in just 30 minutes.

180 seconds post-launch, all rocket stages. would burn out and fall away. The warhead rose approximately 700 miles above the Earth. Reentering the atmosphere, spinning ballistically, and utilizing the forces of aerodynamic drag and gravity, it raced to destruction. Its advanced guidance system provided an accuracy radius of one quarter mile.

Detonation would utterly consume a target area. For over a mile in all directions all living things would vaporize; all man-made objects be incinerated. Nothing recognizable would remain. 200

mph winds would obliterate even stoutly constructed buildings within three miles. Beyond lethal doses of radiation, people up to eight miles away would be flash-blinded. Lingering radiation would make the area uninhabitable for centuries to come.

## Stop 5

To your right lies an ultra-high frequency antenna surrounded by concrete. This blast hardening would help withstand effects from a nearby warhead detonation. This antenna provided a link between the missile and the Airborne Launch Control System. Should the missile become electronically isolated or nearby launch capsules destroyed, special aircraft could launch missiles from the air.

Airborne Command Post aircraft, designated 'Looking Glass,' anchored this system. Based at

Offutt Air Force Base in Nebraska and sharing capabilities of Strategic Air Command's underground command post, a General Officer headed specialized battle staff teams aboard these planes. Throughout decades of heightened Cold War tensions, a 'Looking Glass' mission flew over the central U.S. around-the-clock, seven days a week. Airborne Command Post aircraft from Ellsworth Air Force Base supplemented 'Looking Glass' flights and all could launch the Minuteman force if ground-based missile crews were disabled. 'Looking Glass' missions began in 1961, flying continuously through 1990 when it assumed ground alert. Its mission continues today.

## Stop 6

The low concrete deck is the top of the Soft Support Building. Its box-like roof is about one foot above ground, but below the surface, the walls are another 11 feet deep. It houses electrical and environmental equipment that provide 'life-support' for the missile.

Foremost among these is a large generator. Launch Facilities were run on commercial power, but in case of outages, the generator would automatically start and provide electricity. The launcher itself had emergency batteries, but without this auxiliary system, the missile could have been disabled. Reliable electrical power and a backup was essential to maintaining the missile at the ready.

The Soft Support Building also contained a secure, direct phone to Delta-01, and a chiller unit which regulated silo temperature and humidity and cooled electronic systems. A stable interior environment was vital to the system working at peak efficiency. The temperature inside the launcher remained near 60 degrees, optimal for the missile and its computerized components.

## Stop 7

The large blue 'lid' in front of the silo is the Personnel Access Hatch. Although the site was primarily unmanned, escorted maintenance teams periodically visited here for scheduled upkeep or to repair problems that might arise.

The Personnel Access Hatch is a heavily reinforced door, weighing five tons. Both Security and Maintenance strictly controlled access through this hatch to the interior of the silo. Only Security could open the first half of the system, the blue "A-Circuit" in front of the hatch. The security escort entered a combination provided to them by the Flight Security Controller. After opening the lock they removed the 'A-circuit', retracted a locking shaft, and flipped a switch that hydraulically raised the hatch. The door takes several minutes to open. Once open, the maintenance team chief reached another combination lock. Entering an encoded combination here, an elevator-type "B-Plug" with a telescoping ladder slowly lowered to provide access to the equipment room. Opening the "B-Plug" coincided with how long it took an Alarm Response Team to arrive from Delta-01, should anyone have broken protocol or attempted to gain unauthorized access.

Among many areas here, the equipment room, the interior of the silo were considered "No-Lone Zones". Personnel had to remain within visual contact of one another at all times. Any area of the missile field where the command and control of nuclear weapons could be compromised was considered a "No-Lone Zone".

Daily work "trips" could last up to 16 hours at a time. This impacted Maintenance and Security troops alike. Since Maintenance couldn't access a site without Security providing the first half of their entry, even after Maintenance had re-secured their "B-Side" areas, Security still had to install a new "A-Side" combination and re-secure it.

On most "trips", crews spent over half their workday in long drives to and from sites, as well as the meticulous process of gaining access to or securing the site. Long days often broke a mandatory safety timeline, forcing crews and their escorts to Remain Overnight (R.O.N.) at the nearest Launch Control Facility, like Delta-01. Accommodations were acceptable and the food decent, but few crews enjoyed getting stuck in the field. It was a common source of frustration among many.

## Stop 8

The tall white pole to the left of the launcher is the Improved Minuteman Physical Security System. In 1989 this replaced previous intrusion-detection systems that, less able to discriminate threats, caused numerous nuisance alarms. While designed to detect intrusion by humans, deer near the fence, rabbits, snakes, flocks of birds, and even a swarm of locusts inside the site, could set it off.

When motion was detected, the Delta-01 crew was the first to know. They'd notify the Flight Security Controller who would dispatch his Alarm Response Team to the site. Times varied, but at this location, Security could reach the site within 15 minutes. They followed strict checklists to detect intruders, report damage, confirm the site was secure, then waited off-site until the capsule reset the alarm, before returning to Delta-01.

There were few human intrusions over the years. Most were peace activists protesting at the gate. Though isolated miles from base, Launch Facilities were high-security U.S. military installations and site signage provided ample warning. If a person attempted intrusion of a manned Launch Facility, site security challenged them with M-16s. If the site were undergoing maintenance, challenges could be less pleasant. Intruders at an unmanned site heard no audible alarm. Within minutes an armed Security team detained them, turning them over to civilian police. No Soviets ever attempted to breach a site or gain access to the missile or warhead.

## Stop 9

The two thick steel pylons near the launcher were vital to the emplacement of a missile. Whenever a missile required repairs on base, a massive vehicle known as the Transporter Erector made the transfer to and from Ellsworth via a slow-moving convoy accompanied by both Maintenance and Security teams.

Arriving on site, the driver aligned with marker lines, then backed slowly towards the silo. When in place, crewmen secured the Transporter Erector frame onto the pylons. Once ready, the trailer box cradling the missile slowly pivoted upwards via hydraulics until it stood vertical over the silo. Another team then retracted the launcher closure door beneath it. At this point, the missile would be slowly lowered into or raised from the silo. This operation could take three to four hours to complete. A newly-installed missile would have no guidance and control section or warhead. Other teams added these later in separate operations.

For periodic upgrades on-base, removing and replacing a warhead was also required. As this meant transporting nuclear weapons over long distances on public roads, it demanded some of the heaviest armed security in Strategic Air Command. The Reentry Vehicle traveled in a special tractor-trailer within a convoy. Twenty heavily armed Security Policemen, divided among four armored vehicles and a helicopter for overhead cover, escorted this lone Reentry Vehicle and Guidance Control van. A United States Deputy Marshal headed the convoy to and from its destination.

## Stop 10

South Dakota's Minutemen were on-alert 24-7 for thirty years. In 1991, President George H. W. Bush and Soviet leader Gorbachev signed the Strategic Arms Reduction Treaty, which limited the number of intercontinental ballistic missiles and warheads either country could possess. It also allowed one site per side to be preserved for historical purposes. Months later, the Soviet Union dissolved, and with it, many of the tensions of the Cold War. Both nations had spent enormous sums on nuclear defenses they never launched, but the long, unwinnable stalemate that ensued successfully averted a war of massive devastation on a global scale.

South Dakota's missiles were the first taken off alert. The Strategic Arms Reduction Treaty dictated that silos be destroyed and filled with rubble and soil. The Air Force even allowed some former landowners to push the button that imploded the site themselves, before eventually selling the land back to them.

Delta-09 offers an unprecedented opportunity to see a Cold War ICBM in its original setting, and to contemplate the role of nuclear deterrence in preserving peace. It is the story of the Cold War and how it impacted generations of Americans who grew up under the tangible threat of Soviet communism. It is the oft-overlooked saga of courageous men and women serving thanklessly and unseen in the United States Air Force missile fields, and the story of the people of western South Dakota who lived alongside Armageddon.

But while this chapter has ended, the story is not over. Harsh international realities persist, thus U.S. nuclear deterrence continues. Thousands of young Airmen supporting 400 Minuteman Ill missiles remain on alert across the Great Plains. These missiles are scheduled to be operational through the year 2030.

We hope you enjoyed your tour of Delta-09. Continue your visit at the Minuteman Missile National Historic Site Visitor Center 15 miles east of here at Exit 131. There you'll find more tour information, view our orientation film, explore exhibits, and visit our bookstore. Don't forget Delta-01 Launch Control Facility at exit 127. Tours of that site require advanced reservations.

## Stop 11

Welcome to the Delta-01 Launch Control Facility and Launch Control Center. My name is Bill

West, former United States Air Force Sergeant, and I served as a Flight Security Controller at Delta-01 from 1972 to 1974. I'll be your guide as you walk to the gate. This tour begins in the parking lot and each stop will take you closer to the Launch Control Facility. Access inside the gate is available on a reserved tour only.

The six acre fenced compound you see in the distance was not a secret, but the millions of people who passed it on lnterstate-90 may have dismissed it as nothing more than a ranch house. Imagine though, if you were one of those innocent passersby and had glanced at the strange structures contained within the fence. Why were there so many antennas, and what were they for? What would you have thought the structures were? What went on inside the fence? How did this remote outpost contribute to America's Cold War defense?

Along the walk to the front gate, additional stops will explore the features to be seen through the fence at Delta-01.

## Stop 12

The facility in front of you was continuously staffed by ten Air Force personnel day and night for

thirty years. Two officers stood vigil in the underground launch control center, replaced each morning by a new missile combat crew dispatched from Ellsworth Air Force Base. Eight topside support personnel, including two flight security controllers, two two-person armed response teams, a cook, and a facility manager, worked three-day shifts.

A single, manned, launch control facility such as Delta-01, linked to ten, unmanned, underground, missile silos was designated a "flight." The silos were separated from the launch control facility and from each other by a distance of several miles. There were no missiles at this location. The dispersal of silos and control centers was to prevent the Soviets from destroying two targets with one of their warheads.

Delta-01 was the hub for Delta Flight, one of five flights assigned to the 66th Strategic Missile Squadron of the 44th Strategic Missile Wing, headquartered at Ellsworth Air Force Base, near Rapid City.

While it may feel remote, Delta-01 constantly communicated with the missiles under its command, the other control centers in the squadron, and Strategic Air command through a number of high-tech systems.

If you'd driven to the gate of Delta-01 during the Cold War, do you think the armed security police would have given you a warm welcome?

## Stop 13

As you open and close the gate for the sidewalk, you are practicing good manners for ranch country. The landscape around Delta-01 was open ranch land, and all manner of livestock might be grazing in adjacent fields, roads, and even the driveway to the launch control facility. Leaving a ranch gate the way you found it is considered to be good manners in ranch country.

Delta Flight was part of the 44th Strategic Missile Wing, which spread over 13,500 square miles of western South Dakota, impacting the lives of many farmers and ranchers. In return for hundreds of miles of improved gravel roads and electric power to rural, previously unserved areas, employment for local labor in the construction process, and the economic impact of the increased Air Force presence, local residents became uneasy partners with the nation's rapidly growing nuclear force in the early 1960's.

The meeting of national security and practical local needs did not occur without conflict. The issue of land rights took on great importance. Most of the land needed for the system was in private hands. The Air Force had to acquire its pre-selected sites and do so quickly, whether through direct purchase, or, in extreme cases, the right of eminent domain. Landowners were at least partly right to think that strategic planners in far off military headquarters were playing God with their pastures.

To ensure that the government took landowners' rights into consideration during site selection and fairly compensated landowners, a group of farmers and ranchers formed the Minuteman Missile Area Landowners Association in the early 1960s. The association disseminated information to area landowners, believing that working collectively would aid the defense effort while safeguarding their private interests.

## Stop 14

Inside the fence and beyond the volleyball court is a device that resembles a barbeque grill or a bingo spinner. Instead of making steaks or displaying a lucky number, this was a code burner used to destroy obsolete code books.

Like milk, the secret codes used in the missile field had expiration dates. What did missileers do with secret code pages after they were out of date? They stored them in a paper bag in the Launch Control Center for up to a week. After changing over with the incoming missile crew, the off going crew would burn the bag of secrets in the code burner. Once the paper codes were burning well, the crew would spin the roller using the crank to either side. Rocks in the burner broke the ashes into tiny, unreadable particles.

The code burner stands as a reminder of the nature of the work of the missile field and a workforce of Air Force personnel in their twenties with top secret clearances.

## Stop 15

How many antennas can you see inside the fence? The ability to quickly and reliably communicate with the ten missiles of Delta flight and the other flights in the squadron and missile wing was critical to the every-day operation of the missile field. Communications systems at Delta-01 include commercial telephone, the hardened high frequency transmit antenna, hardened high frequency receive antenna, hardened ultrahigh frequency antenna, survivable low-frequency communication system antenna, very high frequency antenna, Intercontinental Ballistic Missile super-high-frequency satellite terminal antenna, television satellite dish, and the cables of the hardened intersite cable system.

Why so many antennas? First, multiple methods ensured constant communication within Delta Flight and to the wider Strategic Air Command regardless of operational circumstances·. Second, these antennas chart the near constant evolution of technology and operations. The two concrete circles mark the sites of the hardened high frequency transmit and receive antennas; built in 1963, these were abandoned by the late 1960s. The code burner sits.at the site of another high frequency antenna removed by the early 1970s. Obscured behind the building is the white dome of the Intercontinental Ballistic Missile super-high-frequency satellite terminal antenna, installed in 1992, the year before Delta-01 was retired.

The round white satellite dish in the yard did not serve a military purpose. Added to the site in 1988, it provided satellite television reception for the airmen stationed here.

## Stop 16

Contrary to the Air Force image, the missile field workforce primarily traveled by car, truck, or armored vehicle. Because of its close proximity to the Interstate and being only seventy-miles from Ellsworth Air Force Base, Delta-01 was one of the easier control centers to reach. More remote sites could require a three hour drive each direction. While helicopter pads were present at every control center and silo, helicopters were only occasional visitors.

The armored vehicle parked in the yard is a Peacekeeper, produced in the early 1980s by Cadillac Gage. Used by Air Force Security Forces as a fire team armored vehicle for escorting missile convoys, the Peacekeeper would have been only an occasional visitor to Delta-01.

Blue-colored government vehicles, often pickups, jeeps, or suburbans, were most commonly used to travel to and from the launch control facility and would have been parked here. A large garage hidden out of sight behind the main building heId a front end loader for use in clearing snow in the winter. On occasion, Delta-01 might have hosted overnight larger vehicles for maintenance or transport.

Over the years the missile field operated in South Dakota, road networks continued to be maintained through federal funds to accommodate Air Force personnel and maintenance activities. Area businesses also benefited from traveling missile crews. With the introduction of Air Force personnel regularly traveling through the area, Wall Drug began advertising free coffee and donuts for Minuteman missile crews. This eventually led to free coffee and donuts to all veterans, truck drivers, hunters, snowmobilers, and honeymooners.

## Stop 17

The topside crew was eight enlisted airmen, who served at Delta-01 for three days at a time. While they had official tasks, especially for the off-duty alarm response team, you often had time to fill. Outside, a basketball hoop, horseshoes, and volleyball court awaited in good weather. Indoors, a weight room, cards, board games, ping pong table, pool table, a television with VCR and satellite dish as well as a good selection of books and magazines were available.

In the Launch Control Center, thirty-one feet underneath the basketball hoop, the two missile officers had fewer options for entertainment. Many missileers used time in the capsule to fulfill the requirements of a master's degree. When there was not enough free time between alarms to concentrate on studying, missileers often played cards, pursued hobbies, or browsed through magazines. Some missile crews referred to such activities as "frontline defense against alert boredom."

In the 1980's, a TV and an AM/FM radio and cassette player were installed in the Launch Control Center capsule for the crew on duty. Missileer Matt Loughney remembered, "there was always tension over what was being watched on TV, because our TV was controlled by their­ settings upstairs on the satellite. Invariably, the eighteen-year-old cop wanted to see Rambo eighteen times, so we would be stuck downstairs trying our damndest to stay awake at three in the morning, and there's Rambo for the fifty-eighth time on TV."

## Stop 18

Getting through the gate was not just a matter of driving up and asking to be let in. The sign at eye level alerted visitors that "Use of Deadly Force Authorized."

Everyone accessing the site-even those recognized-had to be authenticated before entering the compound as a precaution against sabotage or attack. This emphasis on security was included even in routine activities. One facility manager, serving at Delta- 01, once read his code backwards to the combat crew. Realizing his mistake, the crew asked if he was sure this was the way he wanted to state the codes. Unfortunately, the facility manager did not understand their hint, and was forced to return to Ellsworth Air Force Base to reverify his codes before accessing Delta-01.

After verification, the Flight Security Controller would electronically open the gate lock. Incoming personnel would immediately report to the Security Control Center to verify their identity. Facility managers were also responsible for meeting any individual that entered the property, including everyone from branch chiefs, maintenance crews, and local law enforcement to family members and local ranchers. All visitors needed approval to visit a site, including family members. The family those serving alerts were allowed at the launch control facility on occasion, especially at Thanksgiving and Christmas.

During the Cold War, visitors such as yourselves happening-across Delta-01 would not have received a warm welcome. When encountering unauthorized visitors, the standard procedure was for security forces to "jack up" suspects against a fence or wall and check their identification.

## Stop 19

At the far west end of the Launch Control Facility there were seven bedrooms, ensuring extra space for maintenance and security teams caught by bad weather. The cook had a large, well-equipped kitchen to prepare anything from meals from scratch to fast food to foil pack meals. The foil packs were entrees prepared, frozen and shipped to Ellsworth Air Force Base from the kitchens at F.E. Warren Air Force Base in Cheyenne, Wyoming. The day room was a large, multipurpose room where you could eat a meal, read a book, play cards, or watch TV.

The southeast side of the building has a communication equipment room, water treatment' room, and boiler room that are accessed through exterior doors. The boiler room can also be entered from the interior of the building. The rear of the support building has an attached very ­high-frequency antenna and an air conditioner.

The Security Control Center was the office for the Flight Security Controller, located behind the large windows that look directly at the front gate. From this office, the Flight Security Controller controlled access to the facility's main gate and coordinated with their Security Alert Teams over the radio. The Flight Security Controller was the primary security contact for the missile officers in the Launch Control Center as well as controlling access to the Launch Control Center.

In the three rooms between the Security Control Center and the front gate of the facility there were an air handling room that provided air conditioning and filtration to the Launch Control Center; a diesel generator for backup power to the Launch Control Center, and a recreation room with exercise equipment.

## Stop 20

In the spring of 1993, missile combat crews served their last alerts at Delta-01. They departed as the remainder of South Dakota's missile field was being dismantled in accordance with the 1991 Strategic Arms Reduction Treaty, which limited the number of intercontinental ballistic missiles and warheads either country could possess.

Delta-01 offers an unprecedented opportunity to see an underground control center in its original setting, and to contemplate the choices America has made to "provide for the common defense." While the threats America faces have evolved in the generation since the end of the Cold War, the Minuteman missile remains a key component of United States nuclear deterrence. Known today as "Missile Alert Facilities," forty control centers similar to Delta-01 continue to watch over missiles kept on ready alert.

Access inside the gate of Delta-01 is available on a reserved tour only. To protect the historic facilities and to provide for visitor safety, each tour is limited to six participants and a park ranger. This tour lasts forty-five minutes, beginning and ending at the entry gate. All tour participants must be able to walk and stand unassisted. All tours of the Delta-01 Launch Control Facility require advanced reservations and an amenity fee. Reservations can be made on-line or by phone. Reservations can be made up to 90 days prior to tour date. In the summer season, tours fill up to eight weeks in advance.

We hope you enjoyed your walk to the gate. You can continue your visit at the Minuteman Missile National Historic Site Visitor Center located 4 miles east of here at exit 131. There you can get more information on tours, watch the orientation film, and explore exhibits, and a bookstore. Be sure to also visit the Delta-09 missile silo located 10 miles west at exit 116.