



AND COVER!

A field report on ICBM sites



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Duck and cover! To anyone who grew up in the late 1950s or early 1960s, this phrase is likely pretty familiar. During the height of the Cold War, students in school were told to duck under their desk and cover their face in case of a nuclear strike. I still remember being in the first grade and having regular duck-and-cover drills. If you were in a classroom, you ducked under your desk and stayed away from windows. If you were out in the hall, you were instructed to get in the fetal position against the wall. How did we get into this situation, and what does it have to do with right of way?

The Cold War

Brittanica describes the Cold War as “the open yet restricted rivalry that developed after WWII between the United States and the Soviet Union and their respective allies.” While scholars cannot agree on the precise starting and ending of the cold war, it is generally agreed to range from 1947 to 1991, with origins starting from 1945. The term “cold war” is used refers to the fact that there was no widespread, large-scale fighting between the two superpowers. Instead, the world saw the outgrowth of smaller conflicts such as the Korean War, the 1956 Hungarian Revolution and the 1962 Cuban Missile Crisis, just to name a few.

After World War II, President Truman wrote the Truman Doctrine in which the United States pledged “support for democracies against authoritarian threats.” The United States and its 11 Western allies created the North American Treaty Organization (NATO) in 1949 to protect the peace under the threat of the Soviet Union. In 1948, the Soviet Union created the Berlin Blockade, which limited the United States and their allies’ travel to the parts of Berlin that were largely occupied by Russians.

In response to NATO, the Soviet Union and its communist allies created the Warsaw Pact. The two alliances, NATO and the Warsaw Pact, were the two oppositions that became the foundation of the Cold War standoff.

With this global context, we can focus on the development of nuclear weapons, primarily the Intercontinental Ballistic Missile (ICBM). According to the National Park Service website, ICBMs have ranges between 6,000 and 9,300 miles. The United States developed and used the first atomic bomb on Japan during World War II. Rocket development began its roots in Nazi Germany’s V-2 rocket, which was used at the end of the war. The arms race between the world’s two superpowers was on.

In 1957, the Soviet Union launched the first successful intercontinental ballistic rocket, R-7 rocket. The rocket was also used to deliver Sputnik into space in 1957 and later, it was responsible for Soviet cosmonaut Yuri Gagarin's launch into space, where he became the first human to orbit Earth in 1961.

In 1953, the Soviet Union detonated a hydrogen bomb (H-bomb) in a test site in Kazakhstan. Thus, the frightening prospects of launching an atomic bomb became real. In late December 1957, the United States launched its first successful Atlas rocket, which led to the development of a new ICBM, the Titan. The continued growth of these rocket systems by both sides of Cold War led to the strategic theory of mutual assured destruction.

Due to inefficiencies in both rocket systems, the United States developed the Minuteman rocket in 1961. This same year, the Soviets began construction of the Berlin Wall, and the United States failed to overthrow the communist government in Cuba (i.e., Bay of Pigs). The 1962 Cuban Missile Crisis marked the midpoint of the Cold War — a confrontation between the United States and the Soviet Union that brought both nations to the brink of nuclear war. In 1963, the United States and the Soviet Union signed the Nuclear Test Ban Treaty which banned above-ground nuclear weapons testing.

In the 1970s, tensions in the Cold War abated, as seen in the 1972 and 1979 Strategic Arms Limitation Talks (SALT I and II Treaties). During the administration of Mikhail Gorbachev, the totalitarian aspects of the Soviet system began to dissolve, and efforts started to democratize the political system. By 1991, the Cold War was over.

Appraising ICBM Sites

1961 saw the development of fully operational ICBM sites in South Dakota near Ellsworth Air Force Base. The missile field in South Dakota was followed by the development of fields in both North Dakota and Missouri. What makes this so interesting is that the land was acquired by the government, and each launch control facility (LCF) and missile tube launch facility (LF) was constructed over a two-year period. The rebar used in the construction of the LF measures 2 ¼ inch diameter with a typical length of 94 feet (depth). The actual missile silo typically measured 12 to 15 feet in diameter. Basically, each LF was similar to a muzzle-loading gun, as trucks carrying the rockets would basically “dump” the rocket down the hole. The cost of the 150-missile sites in South Dakota was \$75 million.

Each missile field contained 15 launch control facilities (LCF), with each LCF responsible for the launching of 10 missiles. The LCF typically occupied 5 to 10 acres and consisted of a housing unit, storage barn and helicopter pad. The LCF typically contained separate bedrooms for the commanding officer and cook, with bunk rooms for other personnel. The LCF would have a commercial-grade kitchen, dining area, living room/den and often a weight/exercise area. In addition to the living quarters, there would be a small security room with a hidden elevator and a backup generator. The barn was used to house equipment such as snowplows, mowers, etc.

Credit: NPS Photo



Entering the elevator, one would descend 35 to 50 feet down into a large open room with a bank safe door which provided entrance into the launch capsule. The underground launch capsule was manned 24/7 from 1962 until decommissioning, ranging from 1987 to 1995. Each launch capsule was manned by two people, each having a launch key and far enough apart so that it took two people to actually launch a missile (turning the key). Each launch capsule contained a single bunk and was situated on a spring-type system in case of nuclear attack. Also, each capsule had an escape tube to the surface which was filled with sand with a collapsible shovel. I often wondered that if the facility was attacked, wouldn't the sand turn to glass?

One bit of gallows humor was noted on each of the bank vault doors to each capsule. For example, on the Delta 1(D-1) LCF, a Domino's Pizza box was painted on the door with missiles coming out of the box with the words "World-Wide Delivery in 30 minutes or less, or your next one is free." On the Oscar site, Oscar (O-1), the Grouch was shown in a garbage can with missiles coming out of the can. Finally, on the Hotel site (H-1), a bellhop was shown carrying a tray of missiles.

For the appraisal of these facilities, our firm was asked to propose a scope of work detailing how we would approach the problem of valuing these assets for disposal sale at fair market value. Like most appraisal problems, we centered our response on highest and best use. For the LCF, we considered alternative uses for these facilities. Of course, the land lines and communication equipment had been removed, and the underground launch tube had been filled with concrete, so everything was at ground level.

For the actual missile sites, each missile site typically consisted of 1.5 to 2 acres with a chain-link security fence that also extended some 18 inches below the surface. The LF was actually imploded as part of the demolition process, and the missile silo filled in with concrete and the pad leveled off. These sites were typically near a roadway, although some included a small access easement. The original landowners were given the right of first refusal and could purchase the site at fair market value. These sites were typically far removed from development and their highest and best use was for continued agricultural use. Many of these sites were purchased by the previous landowner or current owner and used for hay storage and/or equipment storage. The fences were extremely secure and provided an extra benefit to the buyer. The valuation of the LFs was based on the Sales Comparison Approach, which included an investigation of land sales within each specific market area. All the sales were adjusted for the fencing and for the property rights conveyed. Gathering sales data included discussions with area brokers and appraisers, lenders and tax offices.

For the LCFs, our study included investigation of housing costs in smaller towns nearby. In the valuation of the LCFs, typical MLS data was used along with discussions with area brokers and appraisers. The adjustment process was based on an analysis of the unit sale price per square foot as well



Rebar from the H-II Launch Facility

as adjusting for location, access, accessory buildings, etc. In retrospect, we found out that some of the LCFs were purchased as hunting lodges, housing for hired hands, single-family dwellings and one was even purchased by the county as a halfway house for those recently released from jail. For both the LCF and LF, we were pleased that all our appraised sites actually sold within 5% of our appraised values.

While I was in Missouri at the Whiteman Air Force Base, the crew of the B-2 bomber named for the State of Texas gave me a patch, and I was also presented a piece of rebar from the Hotel (H-11) missile silo, which I use as a paper weight. While on inspections near the base outside of Knob Noster, Missouri, I passed by an Amish farmer who was building a barn using a block-and-tackle system. As I watched them work, a B-2 flew over, and I could not help but visualize the span of time and technology.

Appraising unusual property is often filled with challenges and hard work. For the North Dakota field, I told our contracting agent not to send us up there in the winter. Sure enough, we were inspecting property in February. We purchased a snow shovel which broke requiring us to make a long trip to a store. We also had to purchase a liquid that would un-freeze the locks so we could enter to inspect. At one point, the ground was so frozen, we couldn't open the gate. Luckily, the snow was so high, we simply went up a snow embankment and stepped over the security fence. For this appraiser from Texas, I think I will pass on the next winter job in North Dakota. 🚗



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