1. NAME AND LOCATION OF PROPERTY

Historic Name: Strategic Air Command Ground Alert Facility, Mountain Home Air Force Base

Other Name/Site Number: Readiness Crew Building (Building 291); Alert Area (Building 31020; 31021)

Street and Number (if applicable)**:** 12 Bomber Road

City/Town: Mountain Home Air Force Base **County:** Elmore **State:** Idaho

2. SIGNIFICANCE DATA

NHL Criteria: 1 and 4

NHL Criteria Exceptions: N/A

NHL Theme(s): IV. Shaping the Political Landscape
3. Military institutions and activities
VI. Expanding Science and Technology
2. Technological applications
VIII. Changing Role of the United States in the World Community
1. International relations

Period(s) of Significance: 1958–1965

Significant Person(s) (only Criterion 2)**:** N/A

Cultural Affiliation (only Criterion 6)**:** N/A

Designer/Creator/Architect/Builder: Leo A. Daly Company (designer)/Morrison-Knudsen (builder)

Historic Contexts: *Protecting America: Cold War Defensive Sites Theme Study*

3. WITHHOLDING SENSITIVE INFORMATION

Does this nomination contain sensitive information that should be withheld under Section 304 of the National Historic Preservation Act?

___ Yes

_X_ No

4. GEOGRAPHICAL DATA

1. Acreage of Property: Approximately 103 acres

2. Use either Latitude/Longitude Coordinates or the UTM system:

Latitude/Longitude Coordinates (enter coordinates to 6 decimal places)**:**
Datum if other than WGS84:

Latitude:		**Longitude:**
Point 1	43.032980	-115.852056
Point 2	43.032118	-115.848599
Point 3	43.032114	-115.852564
Point 4	43.030123	-115.836654
Point 5	43.026456	-115.836631
Point 6	43.026476	-115.842982
Point 7	43.030677	-115.853241
Point 8	43.031559	-115.852012

OR

UTM References:

Zone	**Easting**	**Northing**

3. Verbal Boundary Description:

Beginning at the northernmost point at the intersection of the northwest edge of Taxiway B and the flightline taxiway (Point 1); southeast approximately 1,045 feet to the northwest corner of the original security fence line (Point 2); due east approximately 1,625 feet to a point (Point 3) where the fence line angles southeast; southeast approximately 1,800 feet to an intersection with the base perimeter road (Point 4); due south approximately

1,310 feet along the western edge of the base perimeter road to the southern edge of the original security fence line (Point 5); due west approximately 1,670 feet to Point 6; then northwest approximately 3,335 feet to the intersection of the southern edge of Taxiway C and the main runway (Point 7); northeast approximately 560 feet to where Taxiway D meets the southern end of the main runway (Point 8); and north approximately 460 feet to meet Point 1. See Map 2 Mountain Home AFB Ground Alert Facility NHL Boundary for a visual depiction of boundary.

4. Boundary Justification:

The boundary follows the former ground alert facility's original security fence line, defining an area that encompasses all the extant contributing resources.

5. SIGNIFICANCE STATEMENT AND DISCUSSION

INTRODUCTION: SUMMARY STATEMENT OF SIGNIFICANCE

The Strategic Air Command (SAC) Ground Alert Facility at Mountain Home Air Force Base (AFB) is eligible for designation as a National Historic Landmark (NHL) under Criterion 1 for its association with nuclear deterrence strategies that shaped U.S. foreign policy and defense during the Cold War, and under Criterion 4 as an example of exceptionally important design representing the U.S. Air Force's SAC ground alert concept, a response to the U.S.S.R.'s development of intercontinental ballistic missiles (ICBMs) armed with nuclear warheads. The goal of the SAC ground alert program was to have refueling planes and nuclear-armed bombers in the air fifteen or fewer minutes after receiving a warning of incoming Soviet missiles. Achieving this goal required new mission-specific base infrastructure and buildings typified by the SACGAF features constructed at Mountain Home Air Force Base in Idaho starting in 1958. This former ground alert facility is located at the southern end of the main runway of an active Air Force base. Its 150-man capacity alert crew building sits between one seven-stub alert apron and one single-sided, four-stub apron. This facility was designed for a B-47 bomber wing and supporting refueling tankers.

In the early years of the Cold War, both the United States and the U.S.S.R sought to combine two weapons introduced with devastating effect in the last year of World War II (WWII): the ballistic missile and the atomic bomb. The Soviet Union successfully tested an atomic device in 1949, but for both nations, a long-range missile able to carry a nuclear warhead was years in the future. Early in this period of confrontation between nuclear-armed adversaries and against a backdrop of increasing tension, aircraft offered the only means of delivering a nuclear strike. Consequently, the long-range bombers of the SAC figured centrally in the formulation of U.S. deterrence policy to counter the Soviet threat. As the prospect of a viable Soviet ICBM moved toward reality in the mid-1950s, SAC sought to maintain its role in deterrence through the ground alert program, a command structure and technological system developed to launch one-third of the entire SAC fleet of nuclear-armed bombers with 15-minutes notice—the estimated amount of time between detection and impact of a Soviet missile attack. To improve the chances of the counterstrike, the Air Force also dispersed its bomber wings more widely across the country and increased the number of bases on foreign soil.

As part of the dispersal strategy, the Air Force faced the challenge of quickly constructing a substantial number of new alert facilities for both heavy and medium bomber wings and their supporting refueling tankers.[1] To minimize cost and to speed installation, the Air Force sought a standardized, scalable design for different size alert crew buildings, built of inexpensive materials and designed for ease of construction. The resulting "readiness crew building" (referred to in this nomination as the alert crew building) designed by the Leo A. Daly Company, came in three sizes—70-, 100-, and 150-man capacities—depending on whether heavy or medium bombers and refueling tankers were stationed at the base. Ultimately, fifty-eight ground alert facilities

[1] Medium and heavy bomber classifications in this era were generally a function of aircraft weight, range, and bomb load. During the mid-1950s, the Boeing B-47 served as the Air Force's primary medium bomber, and the B-52 was replacing the B-36 as the primary heavy bomber. Stuart Slade, *United States Strategic Bombers, 1945–2012* (Newtown, CT: Defense Lion Publications, 2012), 159, 237.

were built across the nation using the Daly Company design.[2] The self-contained, multipurpose building featured several "scramble" or "egress tubes" and ramps to allow men on alert duty to quickly exit the building and rush to waiting bombers in the event of an alarm. The building was one component in the larger alert facility typically consisting of adjacent aircraft staging areas (many in the distinctive "Christmas tree" configuration), taxiways, and an associated road network—all located in an area secured by fencing at one end of the main runway. Collectively, the various elements of the ground alert facility, designed with the single purpose of getting bombers airborne as quickly as possible, evoked the urgency and state of continued readiness of a critical Cold War mission.

The SAC Ground Alert Facility at Mountain Home AFB represents an outstanding example of the SAC ground alert facility and Christmas tree-type alert aprons with high integrity. Mountain Home AFB's facility includes a 150-man capacity type alert crew building and adjacent Christmas tree-type alert aprons, built to support a medium bomber wing with refueling tankers. Contributing resources within the boundaries of the NHL include the Alert Crew Building, Alert Aircraft Aprons and Taxiways, and the Alert Facility Road System. The period of significance extends from 1958, when construction on the facility began, to 1965, when its period as a SAC ground alert facility ended. This period of significance captures the construction and operational years of the SAC Ground Alert Facility at Mountain Home AFB, a period when the SAC bomber was the cornerstone of deterrence. In its development, design, and location, the SAC Ground Alert Facility expresses its Cold War context, serving as a physical manifestation of concepts of deterrence through "massive retaliation," and the importance of strategic bombing and nuclear weapons in U.S. military strategy and foreign policy.

PROVIDE RELEVANT PROPERTY-SPECIFIC HISTORY, HISTORICAL CONTEXT, AND THEMES. JUSTIFY CRITERIA, EXCEPTIONS, AND PERIODS OF SIGNIFICANCE LISTED IN SECTION 2.

Prelude

The long history of enmity between the United States and Russia dates at least to 1918, when a small number of American soldiers were part of a multinational Western expeditionary force that fought for about a year on the side of the Whites (monarchists) against the Reds (Bolshevists) in the civil war that followed the Russian Revolution. Vladimir I. Lenin's forces emerged victorious and the Western forces withdrew. From then on, except for the alliance formed of necessity during WWII, relations between the two sides were typically adversarial and marked by mutual suspicion of each other's motives. In the years following the end of WWII, with much of Europe in ruins, the United States and the Soviet Union—the only remaining worldwide superpowers—began to vie openly for superiority over each other and for influence over the rest of the world. The four-and-a-half-decade-long Cold War, as that contest was called despite each side's periodically engaging in bloody proxy wars, was scarcely the first time in world history that two great powers sought to dominate each other. It was, however, the first time that both adversaries possessed the means of ending human life on Earth by wielding atomic weapons.

[2] Six additional 70-man ground alert facilities for refueling tanker aircraft crew were built in Canada at air bases that were either constructed or improved by the U.S. Army during WWII. Edward Salo, Edward Harthorn, Zach Mitchell, Frank Walker, and Travis Ratermann, "Blytheville Air Force Base Strategic Air Command (SAC) Alert and Weapons Storage Areas Historic District," NRHP Nomination, 2017, §8-33–34. The list of SAC ground alert facilities in the Blytheville nomination includes a 150-man facility intended for R.I. Bong Air Force Base and a 70-man facility initially approved for Ramey Air Force Base near Aguadilla, Puerto Rico that were never built; Ramey AFB, like some others, carried out the ground alert mission with existing facilities rather than the purpose-built ground alert building.

Beginning of the Cold War

Between 1939 and 1945, WWII brought death and destruction on a scale unprecedented in human history. The casualty figures for WWII vary widely, but any count produces almost incomprehensible numbers: about 15,000,000 battle deaths, more than 25,000,000 battle wounded, and almost 40,000,000 civilian deaths. Human losses aside, the economic toll was enormous. And yet nearly all of these casualties, and all of this destruction, were inflicted by "conventional" means such as bullets, grenades, artillery shells, flamethrowers, and vast quantities of both explosive and incendiary bombs dropped from aircraft.[3]

All, that is, except for the bombing of Hiroshima and Nagasaki. In those two places, an estimated 78,000 and 35,000 lives were lost, respectively. What differentiated those losses from all the others was that they were inflicted with one bomb apiece, delivered by a single B-29 bomber with a twelve-man crew over Hiroshima, and another bomber with ten men over Nagasaki. For comparison, during the infamous fire-bombing of Dresden, Germany, between February 13 and 15, 1945, more than 1,200 bombers dropped thousands of incendiary devices and 1,232 bombs that destroyed much of the city and killed an estimated 35,000 civilians.[4] In another devastating raid, between March 9 and 10, 1945, 279 B-29s dropped 1,665 tons of various bomb types on Tokyo, destroying sixteen square miles of the city and killing roughly 100,000 civilians (an estimate that many historians consider far too low). That the destruction in Hiroshima and Nagasaki was caused by one bomb dropped from one airplane was truly mind-boggling. That one weapon could kill so many lifted the horror of war to a new level in the minds of humankind. How to avoid such warfare, or effectively counter or deter an attack with nuclear weapons, soon became a major political and military issue, especially in the United States and the Soviet Union.[5]

In the end, the war's inferno left the United States and the Soviet Union as the two surviving superpowers amid the devastation. Although the Soviet Union had suffered enormous damage and horrific casualties, Soviet leader Josef Stalin was able to divert resources to reconstruction by fiat. In contrast, the United States emerged structurally unscathed, and its economy—which had recovered from the Great Depression largely because of government spending during the war—soon entered an era of economic growth and innovation. One way or another, each nation was able to direct resources to increasing its military might, especially in regard to atomic weapons and the means of delivering them to their targets.[6]

The two atomic bombs dropped in 1945 were the products of years of research and testing in a program codenamed the Manhattan Project. The first successful test of an atomic device took place in New Mexico on July 16, 1945, shortly after President Harry S Truman had learned about the project.[7] Truman informed Stalin of its success the day afterward at the Potsdam Conference, although Stalin, thanks to spies embedded within the project, had known about the bomb's development long before Truman. The dropping of the bomb on Hiroshima so soon after the test did surprise Stalin, whose own scientists quickly redoubled their development efforts. About four years later, on August 29, 1949, the Soviets exploded their first atomic device. This restored the balance of power in Stalin's view—now he possessed the ultimate means of defending Soviet interests against any Western aggression. In the years that followed, an arms and technology race between the rivals effected a "balance of terror." This balance produced a tenuous standoff based on mutual deterrence through the

[3] Robert Goralski, *World War II Almanac, 1931–1945: A Political and Military Record* (New York: G. R. Putnam's Sons, 1981), 425.

[4] Ibid, 378, 416; Mike Wright, *What They Didn't Teach You About World War II* (Novato, CA: Presidio Press, 1992), 223–224.

[5] Paul W. Tibbets, *Return of the Enola Gay* (Columbus, OH: Mid-Coast Marketing, 1998), 195.

[6] John S. Salmon, "Protecting America: Cold War Defensive Sites," National Historic Landmark Theme Study, March 2017 (draft), 8–9, 21, 35.

[7] President Truman was not informed about the Manhattan Project until after he ascended from the vice presidency.

projection of military power, with the threat of counterstrikes and utter destruction. New concepts entered the American vocabulary: "containment," or confining Soviet "aggression" to Eastern Europe through political and military means; "deterrence," or discouraging such attacks by means of a defensive strategy that would inflict unacceptable loss, generally through use of nuclear weapons; and "massive retaliation" and "mutual assured destruction," various articulations of deterrence that reflected evolving conditions, threats, and responses as both sides sought to improve its strategic position without over-tipping the balance.[8]

American Bombers and Missile Deterrence Strategies

When the Soviets successfully tested their atomic device in 1949, each adversary relied on the same delivery system in case of nuclear conflict: long-range bombers. Piston engines and propellers powered most bombers at the conclusion of WWII because jet engines were then still in the early stages of development for practical use in combat aircraft. Late in the 1920s, British Royal Air Force officer Frank Whittle had designed a theoretically functional turbojet engine and applied for a patent in 1930 (issued in 1932). Meanwhile, in Germany in the 1930s, Hans von Ohain designed the first operational turbojet engine, based in part on Whittle's patent. Engines that evolved from Whittle's and von Ohain's designs were used in a limited number of British and German fighter aircraft in July 1944, most famously in the Messerschmitt Me 262. The Germans also utilized them in the war's closing month in the Arado Ar 234 Blitz, a bomber produced in small numbers used for reconnaissance over Britain. At the time, the Blitz proved virtually impossible to intercept with propeller-powered fighters.[9]

Although jet-powered aircraft technology moved forward during WWII, in the early years of the Cold War the United States still relied on propeller-driven bombers, initially Boeing's four-engine B-29 Superfortress, followed by the Convair B-36 Peacemaker. The concept of the B-36 originated from the fear in 1941 that the United States might need an extremely long-range aircraft to defend itself if Britain fell to Germany. It was designed as an intercontinental heavy bomber that would take off from the United States, bomb targets in Europe, and return home. The prototype first flew on August 8, 1946, after the war ended, and B-36s entered service in May 1948. Initially powered by six piston engines and propellers in a pusher configuration, the B-36 was later modified by adding a set of dual jet engines on each wing.

A year after the B-36 prototype flew, Boeing introduced its new strategic bomber, the B-47, in 1947. In contrast to the straight wings and combustion engines of the propeller-driven B-29 and B-36, the B-47 had swept wings, wing-mounted jet engines, and could reach speeds of up to 600 mph—some 200 mph greater than its predecessor. In a retrospective piece, Boeing called its B-47 "a milestone in aviation history and a revolution in aircraft design. Every large jet aircraft today is a descendant of the B-47."[10] The B-47 reflected the conviction that such a high-speed, high-altitude bomber would be very difficult to intercept by contemporary fighters. The high speed gained by the jet engines came at the expense of range: the B-47 had a combat radius of around 2,000 miles. Given the relative isolation of the United States from its WWII and Cold War adversaries, range figured prominently in design considerations and strategy for the military. Limited to 2,000 miles, the B-47 could only strike targets in the Soviet Union from forward bases in foreign countries or on the periphery from U.S. bases.

Under these circumstances, airborne refueling, impractical during WWII with the mass bomber raids using great

[8] Salmon, "Protecting America," 10–11, 13, 18; the phrase "balance of terror" taken from Albert Wohlstetter, "The Delicate Balance of Terror," *Foreign Affairs* 37, no. 2 (January 1959): 211–234, that offered alternatives to "massive retaliation."

[9] "The Development of Jet Engines during the War," Stanford University Computer Science Department, accessed January 21, 2019, https://cs.stanford.edu/people/eroberts/courses/ww2/projects/jet-airplanes/planes.html.

[10] Boeing, "B-47 Stratojet," accessed June 4, 2018, https://www.boeing.com/history/products/b-47-stratojet.page.

quantities of conventional bombs, gained new importance in an era when one aircraft armed with a single atomic bomb could deliver a devastating blow. Accordingly, in 1947 the Air Force gave development of air-to-air refueling highest priority.[11] As a stop-gap measure, about 800 propeller-driven Boeing C-97 Stratofreighters were adapted to carry fuel instead of freight and dispense it in mid-air via a boom.[12] When the first KC-97 refueling tankers became operational in 1950, later replaced by the jet-powered KC-135, the B-47 became a viable component of the home-based deterrence force. Even with the extended range granted by the refuelers, the many southern air bases built during WWII for training were less well suited to transpolar air missions than the northern bases.

Although cutting edge, the B-47 had a few shortcomings. Early models of the B-47 lacked sufficient thrust for takeoffs, so small disposable rocket units provided jet-assisted takeoff (JATO) power. On landing, because thrust reversers had not yet been developed, the B-47 used a drag parachute to reduce its speed. The planes proved vulnerable to metal fatigue where the wings joined the fuselage, resulting in mid-air explosions. The introduction of low-altitude bombing training exacerbated the problem. Fourteen B-47s were lost between January and May in 1957 alone. Production was discontinued that year, but the B-47 continued to serve in SAC units until 1966.[13] Ultimately, a total of 2,032 B-47s were built between 1947 and 1957, when the B-47 formed the backbone of SAC.[14]

As the Air Force began withdrawing the B-47 from service in 1957, the B-52 Stratofortress took over the role as the primary strategic bomber. The B-52, perhaps the most iconic aircraft of the Cold War Air Force due to its long and varied service, represented a more refined design, one able to reach similar speeds with much greater range, payload, and mission flexibility. With its swept wings and jet engines, the B-52 also stood in contrast to the conventional wings and hybrid power ("four burning and six turning") of the massive ten-engine B-36 it replaced. The B-52, which first flew in 1952 and entered service in 1955, proved so reliable and economical to operate that it remains in service today. The B-47 and the B-52, then, were the primary means of delivering nuclear bombs until the mid-1960s, when ICBMs and submarine-launched ballistic missiles (SLBMs) became more effective and began to be deployed in significant numbers.[15]

By the end of WWII, the Army Air Forces had become an almost autonomous branch of the American armed services. In September 1947, this autonomy was manifested in the creation of the U.S. Air Force. The new service branch already included three primary commands: SAC, Air Defense Command (ADC), and Tactical Air Command (TAC). Soon others were added: Air Materiel Command (AMC) and Air Research and Development Command (ARDC). Although ICBMs were still under development in both the United States and the Soviet Union, the Soviet models were deployed by the early 1960s. Countering their use (in addition to deterring bomber attacks) became a key mission of the Air Force, and specifically of SAC.[16]

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[11] Robert Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1907–1960* (Washington, D.C.: U.S. Government Printing Office, 2002), 233.

[12] KC-97s could carry some freight along with the fuel it carried for the bombers.

[13] H. Bruce Franklin, "Broken Bombers – How the U.S. Military Covered Up Fatal Flaws in the B-47 Stratojet with Disastrous Results," MilitaryHistoryNow.com, September 16, 2018, https://militaryhistorynow.com/.

[14] Boeing, "B-47 Stratojet."

[15] Salmon, "Protecting America," 14; Lawrence K. Loftin, Jr., *Quest for Performance: The Evolution of Modern Aircraft* (Washington, DC: National Aeronautics and Space Administration, 1985), 360–377; "Surviving B-36 Peacemaker Bombers" and "Boeing B-47 Stratojet of the U.S. Air Force," Airplanes of the Past.com, accessed May 13, 2018, https://www.airplanesofthepast.com/b36-survivors.htm and https://www.airplanesofthepast.com/b47-stratojet.htm; "Boeing C-97 Stratofreighter and KC-97 Aerial Tanker," Airplanes of the Past.com, accessed May 13, 2018, https://www.airplanesofthepast.com/c97-stratofreighter.htm.

[16] Karen J. Weitze, *Cold War Infrastructure for Strategic Air Command: The Bomber Mission* (Sacramento, CA: KEA Environmental, Inc., 1999), 1, 3, 10.

SAC was established on March 21, 1946. Its mission was to "be prepared to conduct long range offensive operations in any part of the world . . . to conduct maximum range reconnaissance over land or sea . . . [and] to provide combat units capable of intense and sustained combat operations employing the latest and most advanced weapons."[17] Major General George C. Kenney, who during WWII had commanded the Army Air Forces in the southwestern Pacific, was appointed SAC's first commander. Certain innovations, such as the use of refueling aircraft to extend the bombers' range, were introduced while Kenney was in command. He did not give SAC his full attention, however, and morale suffered as a result. After an investigation, Major General Curtis E. LeMay replaced Kenney and assumed command on October 19, 1948. SAC headquarters moved on November 9 from Andrews AFB, Maryland, which LeMay considered too close to Washington, DC, for safety from Soviet attack, to Offutt AFB, Nebraska. LeMay commanded SAC until he was reassigned on June 30, 1957. General Thomas S. Power, a protégé of LeMay, assumed command the next day, July 1, when LeMay became Vice Chief of Staff, U.S. Air Force.[18]

LeMay was a controversial figure known for his combative personality, for the firebombing of Japanese cities during WWII that resulted in hundreds of thousands of civilian deaths, and for his steely determination to see every mission through to completion regardless of the cost. As SAC commander, he insisted on relentless training to the point of perfection, numerous inspections and drills, and penalties for commanders and crews who failed his tests, but rewards for those who met his high standards. He established crew performance competitions and received permission to award spot promotions for the entire crew that won. He also authorized special uniforms, allowances, and other incentives, and as a result SAC morale soared.[19] Former B-47 pilot Donald A. Walbrecht was of the opinion that under LeMay, "SAC was almost a separate air force. It was so nuclear-focused, so bomber-oriented."[20]

During LeMay's tenure as SAC commander, SAC established bases abroad in the United Kingdom, Spain, and Morocco, as well as in the United States, to counter the Soviet bomber threat. In the United Kingdom, air bases that SAC "inherited" from WWII were expanded with longer runways and taxiways, and B-47s began deployments there in 1951. A similar expansion for B-47s occurred at Nouasseur Air Base in Morocco, also in 1951, and other bases in that country. In Spain, new construction and B-47 deployments began at Morón Air Base and Torrejón Air Base in 1953, with similar improvements made at Zaragoza Air Base in 1954. Conceptually, SAC planned the locations of the bomber bases to be in concentric rings around the world, increasingly distant from the Soviet Union and with Moscow in the center. While B-47 bombers located near Russia could retaliate first, they also were the most susceptible to destruction in a surprise Soviet attack. Bombers positioned in the outer ring—which included the United States—were more likely to survive a first strike long enough to get retaliatory bombers in the air, but the distance to targets in the Soviet Union was greater and created challenges with regard to refueling. To solve the problem, piston-driven KC-97 tankers were stationed at the same bases as the bombers, as well as at other sites. They were expected to take off

[17] J. C. Hopkins and Sheldon A. Goldberg, *The Development of Strategic Air Command, 1946–1976* (Omaha, NB: Office of the Historian, Headquarters Strategic Air Command, 1976), 2, 11–12.

[18] Grynkewich, Alexus Gregory, "'Advisable in the National Interest?': The Relief of General George C. Kenney," M.A. Thesis, University of Georgia, Athens, GA, 1994, p. 4; Kohn, Richard H., and Joseph P. Harahan, eds., *Strategic Air Warfare: An Interview with Generals Curtis E. LeMay, Leon W. Johnson, David A. Burchinal, and Jack J. Catton* (Office of Air Force History: U.S. Air Force, Washington, DC, 1988), 6–7.

[19] Hopkins and Goldberg, *Development of Strategic Air Command*, 18–19; Barry Leonard, ed., *History of Strategic Air and Ballistic Missile Defense, 1945–1972* (Washington, DC: Center of Military History, United States Army, 2005), 1:208; and Weitze, *Bomber Mission*, 20.

[20] Amy E. Dase, *Peace Is Our Profession: The Mountain Home Air Force Base Oral History Project, Reports of Investigations No. 167* (Austin, TX: Prewitt and Associates, Inc., 2012), Donald A. Walbrecht interview, 46.

simultaneously with the bombers and rendezvous to refuel them or other northbound bombers that took off from bases to the south. As the heavier, longer-range B-52s entered the Air Force inventory, they were based in the United States, and along with KC-135 refuelers, also visited overseas bases. Without refueling, the B-52s could fly six thousand miles; with refueling, they could deliver hydrogen bombs anywhere in the world.[21]

By the mid-1950s, Soviet ICBM development was nearing the point at which a successful surprise attack by both missiles and bombers was conceivable in the near future. LeMay recognized the need to plan for this threat (especially the ICBM component), give SAC's aircraft and crews a reasonable chance of surviving such an attack, and execute a resounding counterattack to confront the Soviets with a catastrophic outcome no matter which system they employed. The solution was an "alert force" composed of bombers, refueling aircraft, and crews on rotating "ground alert" status so that retaliatory strikes could be launched before either Soviet bombers or ICBMs struck their targets (SAC later initiated an "airborne alert" force employing B-52s). LeMay's goal was to have refueling planes and nuclear-armed bombers in the air fifteen or fewer minutes after receiving a warning of incoming missiles. To achieve this goal, however, it was necessary to rethink the existing infrastructure, which varied widely from base to base. This infrastructure generally included large parking areas for aircraft or smaller pads near runways and 90-degree approaches to taxiway and runways that required bombers to slow to a near halt in order to turn. Crew quarters usually located a distance away from runways or near parking varied from prefabricated metal structures to concrete bunker-like buildings providing additional security and blast resistance. Because of numerous constraints—the size and mission of an existing base, whether adequate space was available for expansion or alteration, the types of aircraft that a base required or could accommodate to accomplish its mission, as well as other factors—not every base was eligible to house a ground alert facility.[22]

After evaluating the training, manpower, and logistical requirements, SAC decided to place one-third of its resources on ground alert at any one time. Three tests were conducted between 1956 and 1957 to determine the viability of the alert concept: Operation Try Out, Operation Watch Tower, and Operation Fresh Approach. At Hunter AFB, Georgia, during Operation Try Out, one-third of the B-47s and refueling aircraft were kept on rotating 24-hour alert for five months, demonstrating that the concept was indeed feasible. Meanwhile, Operation Watch Tower, at Little Rock AFB, Arkansas, proved that the system's organizational structure could accommodate the alert operations and other training requirements. After the two tests, SAC headquarters concluded that ready crew quarters would need to be placed near the alert aircraft. The last test, Operation Fresh Approach, conducted in September 1957 at Mountain Home AFB, Idaho, helped refine the organizational structure. With a B-47 bomber wing and a KC-97 refueling tanker squadron in practice alerts, the Mountain Home AFB test demonstrated the efficacy of having aircraft and crews in close proximity. Toward the end of the test, "the wing operated from two existing buildings near the alert aircraft parking area on the flight line. SAC interpreted the immediate proximity of personnel to their aircraft as a critical parameter for designing future crew facilities."[23] Although the tests were not yet completed when Power took command of SAC, it was obvious that the alert concept was sound, and that crews quartered close to the aircraft greatly shortened the time between alert and takeoff.[24]

Power explained the rationale for the new alert system to the SAC crews in candid terms:

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[21] Weitze, *Bomber Mission*, 11–12, 108.

[22] Ibid, 107–123.

[23] The two quotes are from Karen Weitze, *Historic Facilities Groups at Air Combat Command Installations: A Comparative Evaluation of Selected Resources USAF-Wide* (Plano, TX: Geo-Marine, Inc., 2010), 13. (Plano, TX: Geo-Marine, Inc., 2010), 13.

[24] *Peace . . . is our Profession: Alert Operations and the Strategic Air Command, 1957–1991* (Offutt Air Force Base, NE: Office of the Historian, 1991), 1–2; Dase and Katauskas, "Mountain Home," Section 8, p. 11.

> We no longer have a monopoly in nuclear weapons and long-range bombers. Many of the rapid advances in military technology which are reflected in our weapon systems are also utilized by the Soviets, permitting them to attack us with greater speed, firepower, and accuracy . . . A combat-ready alert force of adequate size is the very backbone of our deterrent posture. Maintaining as much as one-third of our strike forces on continuous alert will not be easy, but it can and must be done. The success of this system depends on you, and I count on you to insure that the alert force will always be ready to achieve its vital objectives.[25]

While the three tests were underway, so too was planning for the new facilities to implement the ground alert concept. SAC hired the Leo A. Daly Company to design the facilities. Founded by Leo A. Daly Sr. in 1915 in Omaha, Nebraska, the architectural and engineering firm had taken on military projects during WWII, gaining invaluable experience. Daly died in 1952, but his son Leo A. Daly Jr. assumed direction of the firm. By mid-decade, the company had become "the most often hired architectural/engineering firm for SAC complex building programs."[26] By the end of 1958, the firm had designed sixty-five ground alert bomber facilities for SAC in addition to working out the most effective mission-specific design formula.[27]

The Daly Company worked with SAC to design infrastructure that helped cut the time required for getting airborne from one hour (already reduced from six hours) to the minimum possible. The Operation Fresh Approach tests at Mountain Home had confirmed that this minimum was fifteen minutes. The designs were created with certain premises in mind. Each bomber was to be parked on pads or "stubs" as close to a runway as possible, and it had to be fueled, armed, and ready to start the engines immediately when an alert was sounded. The crew needed to be as close to the aircraft as possible when on alert, not blocks away in base housing. Once the bombers were ready, they taxied as quickly as possible from the parking stubs to the runway to take off within the 15-minute time frame. The bombers followed each other into the air in 15-second intervals, called Minimum Interval Takeoff (MITO).

Each of these requirements needed the appropriate infrastructure to support them, including newly designed stubs, aprons, taxiways, and crew buildings. Over a two-year stretch between 1957 and 1958, SAC and the Daly Company considered and revised several design schemes that were then applied whenever feasible. To help reduce takeoff time, when available land, financial considerations, and other issues supported the design, the new stubs were set at a 45-degree angle to the aprons and connecting taxiways were configured to reduce turn angles. Unlike at other SAC facilities with 90-degree parking stubs and runway junctions, the new alignments enabled the aircraft to keep rolling and not slow to a near-halt to execute 90-degree turns. The efficient new arrangement, a herringbone pattern, soon acquired the nickname "Christmas tree" for the shape of its footprint.

Initially, the facilities were sized for each of the different configurations of aircraft squadron (typically composed of fifteen aircraft for B-47 and B-52 squadrons) or wing (typically composed of three bombardment squadrons) assignments:[28]

> one medium bomber wing and one tanker squadron (twenty-two crews or 150-man facility): 31,000 square feet

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[25] Chris Adams, *Inside the Cold War: A Cold Warrior's Reflections* (Maxwell Air Force Base, AL: Air University Press, 1999), 87.

[26] Karen Van Citters, "Mountain Home Air Force Base, Ready Alert Facility (Building 291)," HABS No. ID-118-E (Washington, DC: Historic American Buildings Survey, National Park Service, 2013), 2.

[27] Van Citters, 2. One of the facilities planned for R.I Bong Air Force Base was never built.

[28] "SAC Wing Organization," StrategicAirCommand.com, accessed December 11, 2018, http://www.strategic-air-command.com/wings/organization.htm

one medium bomber wing (fifteen crews or 100-man facility): 22,500 square feet
two tanker squadrons (fourteen crews or 100-man facility): 22,500 square feet
one heavy bomber squadron and associated tankers (nine crews or 70-man facility): 18,000 square feet
one tanker squadron (seven crews or 70-man facility): 18,000 square feet.[29]

In practice, squadron and wing assignments deviated to some degree from this format. Nevertheless, the initial designs were based on the number of crew associated with each type of aircraft and number of aircraft in a wing (three crew members for the B-47 and six for the B-52; fifteen aircraft in a squadron and three squadrons in a wing) and associated support staff.[30] The extensive investment in the SAC ground alert program—the Air Force received $107.2 million between 1958 and 1959 alone for the construction of ground alert facilities—also emphasizes its national character.[31]

In contrast to the United States, according to one historian of the Soviet military, "the Soviet air forces did not regularly keep any of its aircraft on airborne alert in part due to lingering durability problems with the engines and the difficulties of operating from remote Arctic bases, and in part due to concerns over the control of the weapons."[32] On the occasions when Soviet strategic bomber forces stood on ground alert, they were deployed unarmed, and it could take two hours to load nuclear weapons.[33] Bomber bases at Dolon, Engels, Ukrainka, and Vozdvizhenka, show signs of staging aprons at the end of runways, with rectangular or 90-degree stubs, but not in a 45-degree configuration or with dedicated alert crew buildings.[34] Whereas the United States positioned the bulk of its bomber forces for an attack on the Soviet Union, the Soviet air force deployed the majority of their bomber forces in the western third of the country to support or counter potential attacks in Europe, Asia, or the Middle East. Ultimately, the Soviets invested more heavily in air defenses and the development of ICBMs to strike targets in the United States rather than a substantial force of long-range bombers based in the Far East and north.[35]

On October 1, 1957, SAC first placed bombers on ground alert status, a program that would continue for thirty-four years, although the new facilities were not yet completed. Construction had been proceeding well, but the Soviet launches of Sputnik I on October 4 and Sputnik II on November 3 gave a fresh jolt of urgency to finish them quickly. The launches demonstrated that the ICBM threat was imminent, not in some distant future. Mountain Home AFB was one of the first of the facilities to be finished.[36]

Mountain Home AFB Ground Alert Facility

When WWII erupted in Europe in September 1939, the U.S. government was already searching the country for

[29] U.S. House of Representatives, *Military Construction Authorization for 1959*, 232.

[30] Bill Yenne. *B-52 Stratofortress: B-52 Stratofortress: The Complete History of the World's Longest Serving and Best Known Bomber* (Minneapolis: Zenith Press, 2018), 40.

[31] U.S. House of Representatives, *Hearings Before the Subcommittee of the Committee on Appropriations, Military Construction Authorizations for 1959, Eighty-Fifth Congress, Second Session* (Washington, D.C.: GPO, 1958), 165. The $107.2 million allotted for construction of the ground alert facilities is equivalent to approximately $1 billion in 2019 according to the U.S. Department of Labor, Consumer Price Index, Inflation Calculator, dol.gov/general/topics/statistics/inflation.

[32] Steven J. Zaloga, *The Kremlin's Nuclear Sword: The Rise and Fall of Russia's Strategic Nuclear Forces, 1945–2000* (Washington D.C.: Smithsonian Books, 2014), 17.

[33] Ibid, 17.

[34] Aerial survey of former Soviet Long Range Aviation air bases conducted with Google Maps, "Dolon Air Base," "Engels-2," Ukrainka (Air Base)," and "Vozdvizhenka (Air Base)," accessed September 2018.

[35] Director of the Central Intelligence Agency, "Strength and Composition of the Soviet Long Range Bomber Force," *Special National Intelligence Estimates* (June 5, 1958): 1–7; Zaloga, *The Kremlin's Nuclear Sword*, 38.

[36] Dase and Katauskas, "Mountain Home," Section 8, p. 12; Weitze, *Bomber Mission*, 12–13; Adams, *Inside the Cold War*, 76, 87.

sites on which to construct new Army Air Forces training facilities. In the northwestern states, in southwestern Idaho, the Army Air Forces Buildings and Grounds Division considered sites near the towns of Jerome and Mountain Home. The latter was chosen because it was thought that construction would be easier than at Jerome, where land was considerably more expensive and where irrigation ditches would require filling and grading. Mountain Home's relative isolation and lack of infrastructure were both a blessing and a curse, as it was necessary first to build roads and rail spurs to get construction workers and materials to the site. Besides the remote location, the extreme weather and strong winds provided additional challenges. Site preparation began in October 1942, followed by the construction of a rail spur a month later. The Morrison-Knudsen Company accomplished some of the work, including the installation of trailers for housing. The facility officially opened on August 7, 1943, about five months behind schedule because of the challenges that the site conditions and weather had presented. Despite the inexpensive land and many standardized buildings that were constructed, the Mountain Home Army Airfield was the most expensive base built in the American Northwest, costing about $15 million.[37]

The new post included two runways joined by a long taxiway that gave the airstrip a triangular appearance. The runways were much longer than the usual 5,000 feet. The 10,000-foot long main runway was oriented in a southeast-to-northwest direction because of the prevailing northwesterly winds. From that runway's southeastern end, another 10,000-foot long runway extended from east to west. From the western end of the second runway, a 10,000-foot long taxiway extended about 8,500 feet north to the first runway's northwestern end, thereby enclosing an isosceles triangle. The runways and taxiways were constructed with a concrete base and an asphalt overlay to support the weight of fully loaded B-17 Flying Fortress bombers and to endure harsh winter conditions. Some 343 buildings and other structures also were constructed at the post. They included hangars, warehouses, fuel storage buildings, power plants, water and wastewater facilities, officers' quarters and barracks, classrooms, and buildings for headquarters and administration. A hospital, mess hall, theater, commissary, post exchange, and chapel also were built. The airfield trained heavy bomber crews, including crews of the B-24 Liberator and the B-29 Superfortress. When WWII ended in 1945, the post was deactivated.[38]

After the U.S. Air Force became an independent military branch in 1947, the Mountain Home Army Airfield was renamed Mountain Home AFB on January 13, 1948. As tensions with the Soviet Union increased, the base was reactivated in December 1948 to support reconnaissance and transportation operations. During the Korean War years between 1950 and 1953, the base provided training for special operations, psychological warfare, and other unconventional warfare initiatives. In May 1953, as negotiations to end the Korean War were ongoing, the Air Force officially transferred Mountain Home AFB to SAC, sending the 9th Bombardment Wing (B-47 bombers and KC-97 tanker aircraft) to the base from Fairfield-Suisun (later renamed Travis) AFB, California. The 9th remained there until 1966, when it moved to Beale AFB, California.[39]

Likely because of the base's intermittent and specialized uses in the late 1940s and early 1950s, numerous operational buildings and residential quarters deteriorated from lack of use and maintenance. When SAC resumed control of the base in 1953 it began new construction to reflect the changes in its mission. The new B-47s were rapidly replacing the B-29s of WWII as well as the B-50s.[40] To accommodate the heavier jet bombers and KC-97 tanker aircraft, the base's infrastructure was enhanced and rehabilitated. Late in 1953, and concluding in October 1954, M-K-Terteling (a joint venture between Morrison-Knudsen Company and J. A.

[37] Dase and Katauskas, "Mountain Home," Section 8, pp. 5–7; "Presto! . . . Here's Your New 'Trailer Town,'" *The EM-Kayan Magazine of "M-K"* 2, no. 4 (June 1943), 6–7.

[38] Dase and Katauskas, "Mountain Home," Section 8, pp. 6–9.

[39] Ibid, Section 8, p. 9; *Strategic Air Command Unit Mission and History Summaries* (Offutt Air Force Base, NE: Office of the Historian, 1988), 42.

[40] The more powerful B-50 Superfortress was a piston-powered strategic bomber than entered service in 1948.

Terteling and Sons),

> added 2,000 feet to Mountain Home's existing 10,000-foot-long and 200-foot-wide main [southeast-to-northwest] runway, built a new taxiway, refueling and maintenance aprons and warmup pads, and constructed 3,200 feet of new 800-foot-wide parking apron. It also has rehabilitated the existing main runway, taxiways and parking apron with four-inch-thick overlays of asphalt. In addition, the joint venture's work calls for a labyrinth of underground electrical installations, scheduled for completion early in 1955 . . . the underground installations still to be completed by the builders include a far-flung runway lighting system and auxiliary power units for starting jet engines.[41]

This building campaign rehabilitated and lengthened the base's runways and taxiways, installed electrical and other underground systems, and constructed officers' housing. After SAC conducted the three tests of its new defensive system between 1956 and 1957—Operations Try Out, Watch Tower, and Fresh Approach—it further enhanced Mountain Home AFB's 1954–1955 alterations by quickly building an improved ground alert area. The improvements included new and strengthened taxiways, alert aprons, drainage, and electrical systems. The Morrison-Knudsen Company was awarded the contract for the new ground alert facility in June 1958. The new aprons were large, approximately three-quarters of the area of a football field from goal line to goal line and sideline to sideline:

> Nearly 92,000 cubic yards of concrete in immense slabs that are 23 inches thick are going into the new alert aprons and their connecting taxiways, all of which tie into the existing main runway. Each apron is 250 feet long, 150 feet wide and will accommodate one fully loaded and armed airplane. The connecting taxiways, three of which are being built, are from 75 to 100 feet wide and range from 2,400 to 4,000 feet in length. Bordering all of the new concrete will be a 25-foot-wide swath of asphalt paving for shoulder stabilization. In addition, M-K's builders are moving some 500,000 cubic yards of earth to prepare the site for the improvements and are installing three miles of big sewage lines, two miles of storm drains and three miles of domestic water line. Their final item of work will be installation of a quarter-million-dollar system of airfield lighting along the taxiways and aprons and banks of floodlights for security purposes.[42]

Among the innovations that shortened bomber takeoff times were new, partially below ground, dedicated alert buildings that housed and enabled crews to get to their aircraft in only a few minutes. The construction of the Mountain Home alert crew building began late in 1958 and was completed on February 25, 1960. The first crews occupied it on March 1. It had sloping ramps and "scramble tubes" leading out from the building to facilitate rapid access to the alert aircraft. As a former crewman later attested, it was important to secure a bedroom that was located near the ramp and tube that led to a crew member's aircraft. When the B-47s were on alert and sitting on the pads, the nuclear weapons were brought under heavy guard from their secure storage area to the aircraft one after the other. Specialists then loaded them onto the bombers, which were also heavily guarded.[43]

Although the details of life on alert varied from base to base, in general it was a mixture of boredom and explosive movement when the call came. To stave off boredom, crewmen read, gambled, studied, watched television and movies, played pool and ping-pong, ate, and slept. They were allowed to leave the facility as a

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[41] Dase and Katauskas, "Mountain Home," Section 8, p. 9; "Ready for Jet Heavyweights: Pavers Rebuild Idaho Air Base," *The EM-Kayan Magazine of "M-K"* 13, no. 9 (November 1954), 6–7.

[42] "Stout Stands for Bombers on Alert," *The EM-Kayan Magazine of "M-K"* 17, no. 10 (December 1958), 6–8.

[43] Adams, *Inside the Cold War*, 77; Dase and Katauskas, "Mountain Home," Section 8, p. 21; Dase, *Oral History Project*, Max E. Gray and Donald A. Walbrecht interview, 70–76.

group for fresh air, to visit the bowling alley, or to see a movie at the post theater, but they rode to and from the buildings in an alert vehicle, wore their flight suits, and returned immediately to their aircraft if necessary. Some of the men welcomed the respite from family obligations, some worried that their families were helpless without them, some pined for their wives, some studied obsessively, some gambled to the point that their wives complained, and some engaged in hobbies such as model-building.[44]

Former B-47 and KC-97 crewmen, including pilots, co-pilots, and navigator/bombardiers, as well as maintenance crew chiefs who were interviewed in 2011 and 2012 recalled many of the details of life in the Mountain Home AFB alert facility and the rigors of the alerts themselves. Each bomber crew received a leather box with alert duty instructions and the route to its target; the information was not shared with other crews.[45] Former B-47 pilot Lyle K. Moore later stated that "the facility [alert building] was pretty nice. We had everything that we needed out there. They had food out there, good food . . . We had quite a bit of free time in there and they had library books that we could read. A lot of us played cards, maybe poker . . . or bridge or something. Just to waste away the time."[46] Former maintenance crew chief Quitman P. Rawls thought that despite the diversions, life in the alert facility "really . . . was just kind of a boring deal."[47] When the klaxon sounded, the crewmen often exited the tube together, climbed in a station wagon or truck and raced to the nearby aircraft, where they learned the alert level. The maintenance crews on alert already had prepared the bomber for immediate take-off. A mobile power unit was attached to the aircraft, so the crew had merely to throw a few switches to start the engines while the maintenance crewmen removed the wheel chocks and then the power unit. Within a minute or two, the aircraft began rolling off the pads and onto the taxiways, each as soon as it was ready, and followed each other to the runway nose-to-tail.[48] Moore stated, "We had 15 minutes and that was it. They figured that was the length of time it would take for a missile to reach us from Russia."[49] Frank R. Schoonover, a former B-47 bombardier/navigator, noted that when the stubs and taxiways required 90-degree turns, "you had to get out of your [parking] slot, make the slow turn, follow it out, get out to a taxiway, turn, get to the end of the runway." He also commented on the efficiency of the 45-degree-angle parking stubs and taxiways during an alert exercise:

> An airplane is a terrible thing to turn. You're following the yellow line and you look, Is that guy closing too fast? Am I closing on him? There's no four-way stop sign. Who's got the right of way? Who's got the guts? When they did that [changed the design from 90 degrees to 45], what it really did is it got you out of your slot, but then you were on a high-speed taxiway to the end of the runway. There was no stopping. First guy to the end of the runway was gone rather than all this stop and go. It took critical seconds off getting off the ground. I don't know who thought it up, but kudos to them . . . The concern back then was that the Russian missiles were on the way. There were times [during drills] when we had 10 minutes or so to get in the air from the time they picked [a missile] up to when they struck. I mean seconds was getting you further and further away from the blast. They just killed your family and now you're mad. I'm going to go get them![50]

Between alerts, sometimes the crews practiced Minimum Interval Takeoffs (MITOs), in which B-47s followed each other into the air at 15-second intervals as they would have done if actual alerts had ever reached this

[44] Melvin G. Deaile, "The SAC Mentality: The Origins of Organizational Culture in Strategic Air Command, 1946–1962" (PhD diss., University of North Carolina, 2007), 264–265, https://cdr.lib.unc.edu/indexablecontent/uuid:2ad28821-8054-4890-804d-43af2737b85f.

[45] Dase, *Oral History Project*, 18.

[46] Dase, *Oral History Project*, Lyle K. Moore interview, 241, 250.

[47] Dase, *Oral History Project*, Quitman P. Rawls interview, 442.

[48] Dase, *Oral History Project*, Eugene C. Migneault interview, 203–204.

[49] Dase, *Oral History Project*, Lyle K. Moore interview, 250.

[50] Dase, *Oral History Project*, Moore interview, 250.

stage. Moore described the challenge of a practice:

> With the B-47, it put out black smoke that just wouldn't quit. All you could see in front of you going down the runway was a red light on the tail on the aircraft in front of you, 15 seconds in front of you. When you got to airspeed, why, you just pulled it up out of there and finally hit clear air . . . You get into prop wash or jet wash in the airplane in front of you and a wing would drop. . . You had to . . . bring it up . . . Well, as soon as you broke ground . . . you'd get off to the side to be in the clear air.[51]

The blinding smoke was the product of the jet engines and rocket-assisted takeoff, commonly termed jet-assisted takeoff (JATO), and in later models, a water-methanol injection system to give extra thrust to the underpowered engines, and were especially helpful when the bombers were fully loaded with fuel and two atomic bombs. Under those conditions, even the 10,000-foot long main runway was too short for safety. Moore noted that when the bottles were activated, it was "just like taking a catapult off of an aircraft carrier. It sets you back in your seat." The dense smoke required the following bomber to bank sharply left or right to avoid both the leading bomber's smoke and its "jet wash" or wake turbulence, which could cause an aircraft to stall.[52]

When the alert klaxon sounded, the crews never knew for sure whether they would be going to war or merely executing a drill or exercise. At various times during the Cold War, for instance during the Cuban Missile Crisis in October 1962, the crews assumed that an alert meant war. Former crewman Eugene C. Migneault later recalled, "We'd taxi out from the parking spot and we'd say, Oh, this might be it, and then they'd call it off. They wouldn't call it off until everybody had moved . . . [During] the Cuban crisis . . . they told us . . . Hey, the next time you hear the klaxon, we're going to war." Moore confirmed Migneault's recollection: "They briefed us every morning on the situation whether it was getting more serious or what have you when they were getting the missiles out of there and all. They told us that the next time that the klaxon went off that was it . . . Things kind of eased off a bit and they didn't tell us and they sounded the klaxon one day. That was a thrill. We thought we were going [to war], and it was just a practice alert." Douglas J. Pennington, another B-47 pilot, recalled the Cuban Missile Crisis: "I was pulled off leave and put back on alert and we were on alert for 30 days straight. People, to this day, do not realize how close that situation was. We dispersed B-47s all over the West. Dry lakes, mud lakes, anything where they could take off and meet their mission. It was really, really a ticklish situation."[53]

Occasionally an unexpected event occurred that resulted in an alert. On October 5, 1960, an early warning radar in Thule, Greenland, signaled that a massive Soviet missile attack on the United States was underway. The degree of certainty was 99.9 percent. At Mountain Home AFB, KC-97 tanker aircraft pilot LeRoy S. Williams was asleep in the ground alert facility when

> The klaxon went off and I looked at my clock. I said, "Who is the SOB who called an alert at four o'clock in the morning?" We had quick-donning boots, just zip them up. Got in my flight suit and ran out to the vehicle. Got into the airplane. We started engines and I listened to the message, and [navigator] Riley came up front . . . He said, "What have we got?" I said, "Riley, we've got the real thing. Get back there and open up the case for the [combat mission folder]." It had a combination lock on it. I said, "We've got the real thing here. "What?!" "Yes." We sat there with engines running for 20

[51] Dase, *Oral History Project*, Moore interview, 245. At Mountain Home, and only three other ground alert facilities, the first B-47s to race down the runway each time the klaxon rang were those assigned to SAC's elite Post Attack Command Control Squadrons. These modified B-47s (EB-47Ls) carried ultra-high frequency (UHF) radio equipment mounted in their bomb bays to ensure that SAC command could communicate with their bombers even if land-based communication systems were taken out by a first strike. Greg Ogletree, "SAC's Four-digit PACCS Units," *SAC Airborne Command Control Association*, 5, no. 3 (November 1999).

[52] Dase, *Oral History Project*, Moore interview, 250.

[53] Dase, *Oral History Project*, 204, 247–248, 379.

> or 30 minutes. That's when things start going through your head. Is this it? Are we going? . . . Something I think had happened at a radar station, because we shut down after the 20 or 30 minutes.

The "Soviet missile launch" that the early warning radar had detected was in fact the rising full moon, which unexpectedly had reflected radar waves back to the Thule facility.[54]

The crews seldom dwelt on the fact that if an attack came, not only would Mountain Home AFB and other bases have been destroyed, but also that most of the crews would have been dispatched on a one-way mission. Pennington said, "We all knew that you'd never survive."[55] Assuming that a bomber took off successfully and in time not to be destroyed in the imminent blast, it would have to fly through Soviet anti-aircraft fire and interceptor fighter jets to reach its target. If it evaded those threats, it likely would remain under attack on the way out as well. Williams observed that with regard to the bombers, "I had heard 10 percent is the survival rate if they actually had to go in and hit Russia."[56] Max E. Gray, a B-47 pilot during the Cuban Missile Crisis, thought at the time that "we are right now on the verge of going to war." He also understood that most of the men and bombers would never return. To help prevent total blindness from the flash when their nuclear bombs exploded, he and other pilots were issued special lenses and eye patches, so that at least one eye would still have vision. If the men and aircraft survived the mission, then they would attempt to reach a runway in the Aleutian Islands or some other remote location.[57]

The presence and location of ground alert facilities and their role in SAC strategy were not kept secret during the Cold War. In fact, SAC and its commanders ensured that they received extensive publicity as part of SAC's deterrence mission. During Power's tenure as SAC commander, a 1962 movie, *A Gathering of Eagles*, featured the alert building and apron at Beale AFB in California. Power also publicly discussed SAC alert strategy in press conferences, Congressional testimony, and unclassified memos. By such means, SAC and the ground alert facilities not only entered the popular imagination but also demonstrated to the Soviet Union the rapid response and retaliatory power of which America was capable.[58]

As the Cold War evolved and new weapons delivery systems were developed, the systems were conceptually grouped into three divisions or legs of what was referred to as the "nuclear triad": bombers, ICBMs, and submarines armed with nuclear missiles. Of the three, the bombers and ground and airborne alert missions lent themselves best to "signaling," or sending threatening or reassuring messages to the Soviets to thwart any planned aggression. The general numbers of ICBMs and their fixed silo locations were well known and immovable; therefore, they could not be altered to signal U.S. intent, whether real or fictional. In contrast, every effort was made to keep the numbers and locations of nuclear-armed submarines secret and safe from preemptive strikes, so they also could not be used for public signaling. Bomber deployments evolved over time—starting out closer to Soviet borders, enhancing the bombers' performance and weapons load. Placing more of them on ground alert, scattering them over larger numbers of military airfields, instituting an airborne

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[54] Dase, *Oral History Project*, LeRoy S. Williams interview, 592; David Wright, "The Moon and Nuclear War," Union of Concerned Scientists Blog, accessed June 10, 2018, https://blog.ucsusa.org/david-wright/the-moon-and-nuclear-war-904; L. Wainstein, C. D. Cremeans, J. K. Moriarty, and J. Ponturo, *Study S-467, The Evolution of U.S. Strategic Command and Control and Warning, 1945–1972* (Arlington, VA: Institute for Defense Analysis, 1975), 218.

[55] Dase, *Oral History Project*, Douglas J. Pennington interview, 379.

[56] Dase, *Oral History Project*, LeRoy S. Williams interview, 61.

[57] Dase, *Oral History Project*, Max E. Gray and Donald A. Walbrecht, 61.

[58] Weitze, *Bomber Mission*, 14; Deaile, "The SAC Mentality," 233, 259–260, 266; Hemmings Daily, "'Fire Boid,' the first turbine-powered Indy Car, to appear at the 2016 Arizona Concours d'Elegance," Hemmings.com, accessed June 28, 2018, https://www.hemmings.com/blog/2015/12/08/fire-boid-the-first-turbine-powered-indy-car-to-appear-at-the-2016-arizona-concours-delegance/. The Beale AFB crew building featured in the 1962 film still exists but no longer retains integrity because of later modifications.

alert, enabled SAC to increase pressure on the Soviet defensive systems while signaling U.S. awareness of Soviet maneuvering. In conjunction with motion picture propaganda and the public disclosure of defensive tactics, signaling such changes put a human face on one leg of the triad, increased American confidence in the U.S. nuclear deterrence strategy, and sent the message to the Soviets that SAC was not only on alert but was actively defending the country.[59]

The alert mission, which essentially required the crews to train as if the nation were at war, took a toll on the crews and their families. The frequent reassignments, seventy-hour work weeks, sudden soundings of the klaxons, awareness of death, constant training and scoring, spikes in tension and stress when crises occurred—all of these factors wore on the nerves of crewmen and spouses alike. To offset these factors to a degree, the so-called "SAC mentality" or "culture" evolved: an intense bonding among those on the "inside," with immense pride in their skills and their roles in the mission, and a special sense of uniqueness because of the complexity of their roles and the faith that they could be executed flawlessly. Many of the men who stood alert considered the Cuban Missile Crisis to have epitomized all that they had trained to counter. Soviet nuclear missiles were on America's doorstep, tensions seemed to be rising out of control, the Defense Condition (DEFCON) was raised to one level short of war, and SAC crews were told that the next klaxon would mean war. The ground alert bombers and tankers dispersed to their assigned airfields without incident, while during the crisis the airborne alert bombers and their tankers "flew 2,088 missions, logged 47,000 flying hours, traveled 20 million miles, and conducted 4,076 air refueling [operations] without a single accident. SAC's people had demonstrated what close to 15 years [since SAC's creation in 1946] of a 'we are at war' mentality and culture had produced."[60]

Although the ground alert system served as a vitally important part of U.S. national defense strategy during a period when ICBMs first emerged as a realistic threat, the Department of Defense turned to other technologies and alert strategies for deterrence by the 1960s. Secretary of Defense Robert McNamara spearheaded the move toward ICBMs, which he believed constituted a more cost effective basis for deterrence compared to manned bombers.[61] In the same year the ground alert facility opened at Mountain Home AFB, construction began on vast underground Titan I ballistic missile complexes near the base. Although the enormously expensive Titan I complex was only operational at Mountain Home AFB between 1962 and 1965, it provided a glimpse of the future of deterrence, one based on "mutual assured destruction."[62] By April 21, 1964, the number of ICBMs and bombers on alert had become equal. Ultimately, promise of reliable and quick-launching ICBMs led the Air Force to reconsider the 15-minute concept. Although the ground alert program carried on in revised form until the end of the Cold War in 1991, the commitment to maintaining crews in the ground alert facilities to get one-third (and, for a time, one half) of the SAC bombers in the air within 15-minutes was deemed unnecessary or too expensive.

At the same time revisions to the ground alert program were underway, the career of the B-47 was coming to an end. Although the Air Force recognized the B-47 as obsolete in 1959, it remained one of the primary bombers of the early years of the ground alert program.[63] As the Air Force gradually phased out the B-47s and supporting

[59] Darius E. Watson, "Rethinking the US Nuclear Triad," *Strategic Studies Quarterly* (Winter 2017): 134–150, https://www.airuniversity.af.mil/Portals/10/SSQ/documents/Volume-11_Issue-4/Watson.pdf; *Alert Operations and the Strategic Air Command*, 28.

[60] Deaile, "The SAC Mentality," 295.

[61] C. Mike Habermehl and Robert S. Hopkins III, *The Boeing B-47 Stratojet: Strategic Air Command's Transitional Bomber* (Manchester: Crecy Publishing, 2018), 237.

[62] Gunfighter Heritage Committee, "Peace Through Deterrence: the Titan ICBM Program," Mountain Home Air Force Base, July 7, 2017, https://www.mountainhome.af.mil/News/Article-Display/Article/1241029/peace-through-deterrence-the-titan-icbm-program/. Jacob Neufeld, *The Development of Ballistic Missiles in the United States Air Force, 1945-1960* (Washington, DC, 1990), 263.

[63] Habermehl and Hopkins, *The Boeing B-47 Stratojet*, 236.

KC-97 refuelers during the early 1960s, the B-52 took up the mantle as the workhorse of SAC, a role it maintained for several decades.

The increasing role of ICBMs in national defense during the early 1960s was reflected at Mountain Home AFB in changes to the command structure and mission. As the Atlas and Titan missiles became operational, the Air Force created a new designation, the "Strategic Aerospace Wing" to bring both bomber and missile forces under a single command umbrella. At Mountain Home AFB, the 9th Bombardment Wing was renamed the 9th Strategic Aerospace Wing in 1962. In 1966, the reassignment of the 9th to Beale AFB signaled the end of SAC and ground alert at Mountain Home, until a B-52 ground alert mission was added in 1972-73. SAC turned over Mountain Home AFB to the Tactical Air Command (TAC) on January 1, 1966. On February 17, the base's remaining B-47s were flown to the "boneyard" (storage and disposition center) at Davis-Monthan AFB, Arizona. Although Mountain Home AFB moved on to other Cold War missions under TAC, and also served as a SAC satellite alert base supporting other facilities between 1969 and 1974, the singular importance of the bomber alert program had evolved.[64]

Despite the growing importance of nuclear-armed missiles, the manned bomber remained an essential weapon in fighting the Cold War. In conjunction with the ground alert, SAC also began implementing an airborne alert system in 1958 that put B-52s with nuclear weapons in the air 24 hours a day. Moreover, although the 15-minute ground alert program embodied in the crew alert buildings ended at some Air Force bases, at others it continued in various forms until the end of the Cold War in 1991.[65]

While it was in place, the ground alert system—in conjunction with the airborne, missile, and submarine alert systems—played a major role in deterring any inclination by the Soviets to launch an attack. The superbly trained flight crews, who endured long periods of boredom and several episodes of terrifying uncertainty, made the system work. Max Gray spoke (with forgivable hyperbole) for all of the men who stood on alert at SAC bomber bases around the world in the 1950s and 1960s when he said,

> The purpose of us sitting on alert in SAC for that 10-year period, I believe to this day with the bottom of my heart and I'll fight for it, we prevented a war with Russia, period, beyond a doubt. That Cold War would have, if it hadn't been for the B-47s, and if it hadn't been for SAC having the B-47s and LeMay commanding SAC, we would have had a war with the Russians. I believe it. Adamantly.[66]

Although none of the alert aircraft - B-47s, B-52s or B-1s - ever dropped an atomic bomb, they performed a vital role in deterring nuclear war. On September 28, 1991, with the demise of the Soviet Union and the end of the Cold War just weeks away, SAC commander General George L. Butler announced the end of the SAC alert mission:

> It is clearly one of the singular events of our time that . . . I sit here in my command center . . . [and] I see all of SAC's bomber forces off alert . . . This is a great day for SAC. It's a sweeping tribute to 45 years of unparalleled devotion . . . We can sit quietly and reflect on the wondrous news that we've begun

[64] Gunfighter Heritage Committee, "Peace Through Deterrence: The Titan ICBM Program," 122; Dase and Katauskas, "Mountain Home," Section 8, pp. 26–27; Dase, *Oral History Project*, 23.

[65] At some bases, the ground alert program changed relatively little since the early 1960s. In 1984 at K.I. Sawyer AFB, for example, crews still served around-the-clock duty "inside the fence" at the alert crew facility ready to scramble to their nuclear-armed B-52s at a moment's notice. Howard Blum, "At A SAC Base, Living Centers on State of Alert," *New York Times*, February 21, 1984. At Loring AFB, use of the alert facilities continued—with additions made to the alert crew building in 1983—into the 1980s. Earth Tech, Inc., "Loring Air Force Base, Alert Area," prepared for the Historic American Engineering Record (Washington, D.C.: Library of Congress, n.d.), 4–5.

[66] Dase, *Oral History Project*, Max E. Gray interview, 54.

to climb back down the ladder of nuclear confrontation.[67]

Comparison of Properties

The SAC ground alert facilities represent a crucial transitionary period for how to best put new military technologies to work for national interests. Between the mid-1950s when SAC began planning the 15-minute ground alert program and the mid-1960s, deterrence moved from massive retaliation through manned aircraft carrying nuclear bombs to mutual assured destruction carried out with the nuclear triad of sea and ground launched missiles and air-dropped bombs. John Foster Dulles articulated the idea of massive retaliation in 1954 within the context of containment and deterring attacks made by conventional forces. By 1967 deterrence through mutually assured destruction as expressed by Secretary of Defense Robert McNamara meant "the certainty of suicide to the aggressor, not merely to his military forces, but to his society as a whole."[68] Despite a shifting meaning, at its core, deterrence during the Cold War relied on vigilance, alertness, and the threat of catastrophic force. Although U.S. policy makers planned for the possibility of preemptive strikes, in principle, deterrence depended at a basic level on retaliatory capabilities. In 1958, when construction began on the ground alert facility at Mountain Home AFB, that retaliatory capability rested primarily on SAC bombers armed with nuclear bombs.

A closer look at the design of the ground alert facilities shows exactly what vigilance, alertness, and retaliation meant during the early years of the 15-minute concept between 1958 and the end of 1965. The primary means of retaliation came in the form of the Air Force's strategic bombers, specifically the B-47, B-52, B-58, and others, and the dimensions and capacities of the ground alert facility reflect their specifications and characteristics. Alert pads and taxiways were designed to support the weight and to accommodate the length and width of these aircraft. Jet blast deflectors positioned at the rear of each stub showed that the B-47 and B-52 bombers were powered by jet engines, replacing a previous generation of reciprocating engine-powered bombers. The number of aircraft parking stubs and size of supporting alert crew buildings were determined by bomber and associated operational crew numbers. Alertness could be seen in the scramble tubes and numerous exits of the ready crew buildings, klaxons mounted to signal the alarm, the supporting road systems to accelerate transportation to the waiting aircraft, and aprons in close proximity and configured to speed taxiing with a location near the end of runway to minimize distance to take off. Vigilance was embodied through a design for a self-contained state of constant readiness—where air crews spent their days and nights monitoring weather forecasts, receiving briefs on current targets, and training for a variety of missions—and security, with barbed wire fences, guarded entrance gates, and security patrols.

As noted earlier, the ground alert facility at Mountain Home AFB was one of fifty-eight such facilities built across the nation. The three sizes of the ground alert crew buildings—the 70-, 100-, and 150-man capacity types—reflect different aspects of the SAC alert program by virtue of the type of aircraft stationed there. The B-47 and refueler combination, for example, represented an important transition in U.S. bomber technology and strategy, one that moved from the mass raids of propeller-driven aircraft in WWII to the nuclear strike and jet age of the Cold War.

In contrast to the alert crew buildings, which generally followed the same standardized design (except for some minor details associated with local climate and site-specific considerations), the alert staging and aircraft

[67] Adams, *Inside the Cold War*, 87.
[68] Robert S. McNamara, "San Francisco Speech," in Philip Bobbitt, Lawrence Freedman, and Gregory F. Treverton, eds., *US Nuclear Strategy: A Reader* (London: Macmillan Press, 1989), 268.

parking areas exhibit variability among the many ground alert facilities. These differences documented the Air Force's close study of the most expedient way to get their bombers airborne quickly. As noted in the historical context, the Air Force experimented with various configurations, including large rectangular aprons, trunks with 90-degree stubs and triangular stubs, such as the one at Lincoln Air Force Base, ultimately resulting in the 45-degree stub Christmas tree configuration. All, however, generally shared a common location at one end of the main runway so that after a short taxi, bombers equipped with nuclear weapons were in position for takeoff.[69]

The number and dimensions of the stubs represented specific aspects of the SAC alert mission as well. As initially defined by Air Force General LeMay, the mission called for one-third of the base SAC contingent on alert, generally calculated in terms of a 15-aircraft squadron. Theoretically, a base with a single squadron of heavy B-52 bombers required five alert pads whereas a B-47 medium bomber wing composed of three squadrons required alert space for fifteen aircraft and supporting refueling tankers. According to congressional testimony, initially the Air Force planned to stage a single B-52 bomber on a 100-foot-wide concrete pad and two of the smaller B-47s bombers on a 150-foot- wide pad.[70] Consequently, standard designs typically called for nine stubs at a base with a heavy bomber squadron with refueling tankers (five for the B-52s and four for the tankers) either in a single Christmas tree or two trees in parallel or angled at 45 degrees from each other; a base with a medium bomber wing and refueling tankers typically had eleven stubs (seven for fourteen B-47s and four for the tankers) in one or two Christmas trees. In practice, only a single aircraft occupied each pad, and the number and configuration of stubs and trunks varied to some degree at different installations.

In addition to physical distinctions, the various ground alert facilities each have a local context and site histories. Some are located at sites, such as Mountain Home AFB, associated with testing the feasibility of the ground alert concept; other bases, such as Little Rock AFB represented the efforts of politicians and local communities to secure a military installation in their county. The many northern locations of SAC AFBs reflected a goal of reducing the fuel consumption, distance, and time needed to attack targets in the Soviet Union.[71]

Although each has its individual form and history, because the SAC ground alert facilities operated collectively as part of a nationwide network, all of them share the nationally significant historic association with their larger Cold War mission and purpose.

Many SAC ground alert facilities have been demolished or significantly altered, partially due to their specialized purpose, location at the end of runways, and short operational period. Others have been adapted to new uses, either by the Air Force or at bases converted to civilian airports. A comparison of the SAC ground alert facility at Mountain Home AFB with other extant facilities helps to better understand its relative merit.

The best examples of former SAC ground alert facilities are those with the highest integrity, and those that continue to best express the elements of deterrence—the urgency, alertness, vigilance, and retaliation—that underlay the facilities' design and purpose during the Cold War. To this end, the various types of ground alert facilities can be initially screened by determining which extant examples retain the following characteristics:

- presence of intact alert crew buildings;
- location at end of a main runway;

[69] A few ground alert facilities made use of existing flightline aprons for staging alert aircraft.
[70] U.S. House of Representatives, *Military Construction Authorizations for 1959*, 243–244.
[71] Frederick J. Shaw, *Locating Air Force Base Sites, History's Legacy* (Washington, D.C.: Air Force History and Museums Program, 2004), 57–60.

- Christmas tree configuration representing the final evolution of the alert apron; and
- road network to speed access to all pads.

Even when all of a ground alert facility's character-defining features remain in place, major modifications to one key feature, or many minor modifications to one or more key features may diminish the property's overall degree of historic integrity. For example, additions that more than minimally increased the size of an alert crew building, or enlargements of an aircraft parking pad resulting in a loss of its original herringbone configuration, reduce a property's integrity of design and materials. Depending on the scale of less substantial modifications, such as the introduction of drop ceilings and carpeting, updated kitchens and lavatories, or the removal of a few interior dormitory-floor walls may only minimally diminish the property's overall degree of historic integrity. Cumulative impacts of multiple minimal modifications might undermine a property's overall degree of historic integrity. Additionally, the removal or addition of free-standing buildings or structures in the vicinity of a ground alert facility, depending on the scale of those changes, may erode its integrity of setting and feeling.

Because site visits to the various extant ground alert facilities across the nation and outside the United States were beyond the scope of this nomination, the comparative analysis of integrity is based on the latest aerial imagery, previous historical evaluations, web-based research, and a 2016 survey of ground alert facilities conducted by the National Park Service.[72] Additional site-specific work and field investigations may modify the findings presented below.

For the purposes of this nomination, comparisons were made only between facilities located in the United States. Although historically significant, ground alert facilities with earlier versions of the alert aircraft parking and staging areas with stubs at 90-degree configurations or those that used existing flightline areas, are less expressive of the 15-minute ground alert concept than the final Christmas tree types with the 45-degree stubs and the location at the end of the runway.

Of the fifty-eight ground alert facilities built in the United States, only twenty-five remain with both an alert crew building and a Christmas tree-type alert apron. Even fewer were found to have intact combinations of an alert crew building, alert apron and taxiways, and road network. Just six of the twenty-five facilities—four at the former Castle, Clinton-Sherman, Dow, Larson AFBs, and two at active military bases, Bunker Hill (now Grissom Air Reserve Base) and Mountain Home—have relatively intact alert crew buildings and Christmas tree alert aprons. In this analysis, "intact" refers to facilities without major structural additions and that retain the basic character-defining features of the SAC ground alert facility, including windowless, concrete alert crew buildings with low-profile gable roofs, earthen berms covering the lower level, multiple egress tubes (if originally extant) and ramps, and a location in close proximity to alert aprons; Christmas tree alert aprons with original dimensions of stubs, pads, and taxiways; and an original road network providing access from the alert crew buildings to each stub. Although evidence of the original security measures such as fence lines and gates exist at the six facilities, none retain their original materials or design.

Each of the six facilities appear to retain sufficient integrity to convey their historic significance, and each well represents the original form and purpose of the ground alert program. Differences between the six facilities are relatively minor, but none appear to surpass the degree to which the Mountain Home Facility retains its original appearance and configuration. Additional field investigation could further evaluate the integrity of the facility's security features, internal road network, and alert crew building. The integrity of each facility is summarized

[72] The evaluation utilizes a telephone and email survey of the former ground alert facilities conducted by Robie Lange, National Park Service Historian, in 2016.

below:

Bunker Hill/Grissom AFB, IN: The former ground alert facility is located at the northern end of the main runway, and the 150-man type alert crew building sits between one seven-stub aircraft parking apron and one four-stub parking apron. The Bunker Hill AFB ground alert facility was originally used by B-47s of the 305th Bombardment Wing supported by KC-97 refueling tankers.[73] Vacant since the early 1990s when it was transferred to the Miami County Economic Development Authority, the original tube and ramp alert crew building is extant, but in a state of disrepair.[74] The original building design has been slightly altered by the addition of a concrete loading dock cut into the berm on the east side near the mechanical room. It appears the project added a set of double doors at the upper level to serve the dock and sealed an original set of double doors connected to an exit ramp. The construction of a large commercial freight forwarding complex adjacent to one of the former alert stubs diminishes the integrity of setting and feeling of this former ground alert facility. A section of pavement connects the freight forwarding complex with one of the alert aprons to facilitate staging truck trailers on the aprons. Alterations to the alert crew building and to the immediate site result in a ground alert facility with less historic integrity than the one at Mountain Home AFB.

Castle AFB, CA: The former ground alert facility is located at the southern end of the main runway. The 70-man capacity alert crew building sits beside a five-stub parking apron, originally manned by B-52s of the 93rd Bombardment Wing.[75] The former AFB was converted to a civilian airport under the operation of the Merced County Department of Commerce, Aviation, and Economic Development. Overall, this former ground alert facility appears to retain its original configuration. Unused since the 1990s, the tube and ramp alert crew building is reportedly in deteriorated condition.[76]

Clinton-Sherman AFB, OK: The former ground alert facility is located at the northern end of the main runway, and the ramps-only, 70-man type alert crew building sits beside a nine-stub aircraft parking apron. Originally assigned to B-52s of the 4123rd Strategic Wing, the former ground alert facility was recently converted to an Oklahoma Highway Patrol educational facility. The 2016 survey found that the facility retains its original configuration, but its integrity of feeling and association are somewhat diminished because the highway patrol stages vehicles and conducts driving exercises on the alert aprons.[77] The Clinton-Sherman alert crew building was likely one of the "southern" variants built without corrugated metal egress tubes that are more evocative of the urgency of the 15-minute alert concept.

Dow AFB, ME: The former ground alert facility is located at the southern end of the main runway, and the 70-man capacity alert crew building sits between one five-stub aircraft parking apron and one four-stub parking apron originally used by B-52s of the 4038th Strategic Wing. The AFB was converted to a civilian airport (Bangor International Airport) between 1968 and 1969.[78] Dow AFB, like Larson and Castle AFBs, provides an example of a fighter-interceptor alert apron and hangar built in close proximity to the SAC ground alert facility. Constructed relatively concurrent with the SAC ground alert facility, the fighter-interceptor alert facility was

[73] Tom Kelley, *Bunker Hill and Grissom Air Force Base* (Charleston, S.C.: Arcadia Publishing, 2016), 31.

[74] "Grissom Air Force Base, Building No. 747, Historic American Buildings Survey No. IN-301-B," https://www.loc.gov/item/in0453/, accessed July 27, 2019; Cory Walters (Grissom AFB) email message to Robie Lange (National Historic Landmarks Program, NPS), July 5, 2016; Tidd (Miami County Economic Development Authority) email message to Robie Lange, July 6, 2016.

[75] "Castle Air Force Base," http://www.strategic-air-command.com/bases/Castle_AFB.htm, accessed July 25, 2019.

[76] Scott C. Malta (Merced County Castle Airport) email message to Robie Lange, June 30, 2016; Scott C. Malta, telephone conversation with Robie Lange, June 30, 2016.

[77] Bill N. Khourie (Oklahoma Space Industry Development Authority), telephone conversation with Robie Lange, July 5, 2016.

[78] Emily Burnham, "The Story of Dow Air Force Base, 50 Years After It Closed," *Bangor Daily News*, April 5, 2018.

later modified by extending the hangars and conversion to civilian use.[79] Apart from the alterations to the fighter-interceptor hangar, the immediate vicinity of the ground alert facility generally retains its original configuration and setting. The original design of the alert crew building has been slightly altered by the construction of low-profile, gable-roofed structures with ribbon windows over the upper floor exit ramps, likely due to the adverse weather at this location in the winter. Unused since the 1990s, the former alert crew building was reportedly in a deteriorated condition in 2016.[80]

Larson AFB, WA: The former ground alert facility is located at the southern end of the main runway, and the 70-man capacity alert crew building sits between one five-stub aircraft parking apron, and one six-stub parking apron, originally used by B-52s of the 4170th Strategic Wing.[81] The former AFB was converted to a civilian airport, the Grant County International Airport, in 1966.[82] Although within the original security perimeter the former ground alert facility appears to retain its original configuration and setting, construction of some buildings and a water treatment facility to the north and the west since the period of significance diminishes its setting and feeling to some degree. Like at Dow AFB, the Air Force constructed a fighter-interceptor hangar and alert apron relatively close to the ground alert facility at Larson AFB in the late 1950s. According to the 2016 survey, the tube and ramp alert crew building has been boarded up and unused for several years.[83] The alert aprons at the former Larson AFB represent a variation of the more standard Christmas tree configuration for a 70-man capacity facility. Whereas most 70-man facilities typically had either a five-stub or nine-stub tree, the alert crew building sits between a six-stub tree and five-stub tree at Larson.

Mountain Home AFB, ID: The former ground alert facility is located at the southern end of the main runway of an active Air Force base. Its 150-man capacity alert crew building sits between one seven-stub alert apron and one single-sided, four-stub apron (a less common variation of ground alert facility layout). This facility was designed for a B-47 bomber wing and supporting refueling tankers.

An April 2018 site visit and evaluation confirmed that although unused for several years, the former ground alert facility at Mountain Home AFB retains its original configuration and appearance. Despite the presence of modern military aircraft and upgraded infrastructure elsewhere on the base, the nominated historic district benefits from its location within an active Air Force base. Its position at the far, isolated end of the main runway helps the former ground alert facility retain its integrity of setting, location, feeling and association. The alert crew building has been subject to only minor modifications which have only slightly diminished its integrity of design, materials, or workmanship. Its character-defining corrugated metal egress tubes on both the upper and lower levels remain in place. This design, typical of northern alert crew buildings, visually expresses the urgency inherent in the specialized design developed to shelter the alert crew as they rushed to their aircraft better than the southern variants that lack the egress tubes. The aircraft parking aprons are still occasionally used for staging base aircraft. They retain their distinctive configuration and appearance, for a high degree of integrity. A more detailed analysis of the Mountain Home Ground Alert Facility's integrity is addressed below in Section 6 (Property Description and Statement of Integrity).

This consideration of the six former SAC ground alert facilities found that Bunker Hill (Grissom), Castle, and Dow are in deteriorated condition. The alert facility at Larson appears to be in fair condition, with some

[79] "101st Air Refueling Wing," http://usafunithistory.com/PDF/0100/101airrefuelingwing.pdf, accessed July 26, 2019.
[80] Anthony P. Caruso (Bangor International Airport) email message to Robie Lange, July 6, 2016.
[81] Bill Yenne, B-*52 Stratofortress: The Complete History of the World's Longest Serving and Best Known Bomber* (Minneapolis: Zenith Press, 2012), 183.
[82] Eric L. Flom, "Grant County Airport in Moses Lake Opens on October 8, 1966." Historylink.com, October 7, 2006, https://www.historylink.org/File/7965.
[83] Kim Foster (Aero Space Port International Group) email message to Robie Lange, July 26, 2016.

diminished integrity of setting and feeling. Additional field analysis can determine whether Clinton-Sherman's current use has impaired its degree of historic integrity, however, Clinton-Sherman's ramp-only alert building make it a less compelling representative than the full tube and ramp alert crew building at Mountain Home and elsewhere.

Conclusion

During the Cold War, the threat of retaliation figured centrally in deterring an attack between the United States and Soviet Union. Although in the early years of the Cold War both sides relied on bombers armed with atomic bombs as a retaliatory force, the development of ICBMs in the 1950s soon changed the dynamics of deterrence. As the prospects of a viable Soviet ICBM became more imminent, SAC responded with an alert program to launch its nuclear-armed bombers more quickly, attempting to shorten the process of getting its bombers airborne from several hours to a mere fifteen minutes—the amount of time SAC estimated between detection of an incoming missile and its detonation at the target.

One of the cornerstones of the alert program was a new network of specialized ground alert facilities. By 1959, the Air Force had such facilities either completed, under construction, or in the design stage.[84] In its fullest form, the alert facility incorporated specific elements designed to expedite the launch of nuclear-armed bombers and supporting refueling tankers: a location at the end of a runway, dedicated aprons for staging bombers in a "Christmas-tree" shape to speed taxiing, a road network to facilitate access to the aprons, security measures, and a semi-subterranean alert crew building in close proximity to the aircraft. This infrastructure, coupled with intensive and extensive training, enabled the alert crews to exit their quarters, man their bombers and refueling tankers, and takeoff within the desired time. In its development, design, and location, the SAC ground alert facility expresses its Cold War context, a physical manifestation of concepts of deterrence through "massive retaliation," and the importance of strategic bombing and nuclear weapons in U.S. military strategy and foreign policy.

Of the surviving ground alert facilities that share this nationally significant association, the SAC Ground Alert Facility at Mountain Home AFB stands out as one of the best representatives of the ground alert program at the height of its importance as a means of deterring a Soviet attack. As an example of a site that combines a "northern" egress-tube and ramp design with Christmas tree alert aprons, the Mountain Home AFB facility visually expresses the urgency inherent in the alert mission better than other facilities lacking such components. Its association with this critical Cold War mission is further enhanced by its role in Operation Fresh Approach, as one of three SAC bases used to test the feasibility of the ground alert concept. Mountain Home's high degree of integrity and nearly unaltered original appearance and configuration make it a worthy candidate for NHL designation.

[84] As noted earlier, some of these facilities were never built. This number also includes facilities built or planned in Canada and Puerto Rico. National Park Service, "Draft Reconnaissance Survey of Strategic Air Command Bomber Alert Facilities," May 1997, prepared for U.S. Air Force Museum, Wright-Patterson Air Force Base, 28.

6. PROPERTY DESCRIPTION AND STATEMENT OF INTEGRITY

Ownership of Property	**Category of Property**
Private:	Building(s):
Public-Local:	District: X
Public-State:	Site:
Public-Federal: U.S. Air Force	Structure:
	Object:

Number of Resources within Boundary of Property:

Contributing	**Noncontributing**
Buildings: 1	Buildings: 2
Sites:	Sites:
Structures: 6	Structures: 14
Objects:	Objects:
Total: 7	Total: 16

PROVIDE PRESENT AND PAST PHYSICAL DESCRIPTIONS OF PROPERTY
(Please see specific guidance for type of resource[s] being nominated)

The SAC Ground Alert Facility encompasses an approximately 103-acre area at the southeast end of the main runway at Mountain Home AFB in southern Idaho (see Map 1 Mountain Home AFB Ground Alert Facility Site Location). Set amid an arid and flat landscape of grasslands and sagebrush, the base experiences frequent high winds, hot summers, and cold winters. The site originally proved attractive due to the low cost of land, distance from urban areas, lack of air traffic, and potential proximity of a bombing range. Seventy-five years after its original construction, Mountain Home AFB is still relatively remote, with the nearest population center, the town of Mountain Home, nine miles away.

The air base, originally built by the U.S. Army during WWII to train bomber crews, was transferred to the Air Force's SAC in 1953 when long-range bombers formed the backbone of the nation's nuclear deterrence. The air base covers a roughly 3-mile by 3-mile square. The airfield is in the base's southwest quadrant, with a central area of hangars, ground support buildings, and offices set in a linear pattern oriented parallel to the northwest to southeast orientation of the flightline, a weapons storage area and a few additional base support buildings to the north, and base housing and a golf course in the northeast quadrant. The road system includes paved sections, such as the grid serving the base's central core and irregular patterned street networks in residential areas, unimproved roads in remote areas, and a perimeter road that follows the property's square boundaries. While some of the hangars were constructed during WWII, most buildings and structures on the base date to the Cold War and post-Cold War era. The right triangle configuration of the airfield's runways and taxiways are a legacy of the original design, but the runways have been considerably lengthened and modified over time. Currently, the hypotenuse of the triangle, oriented northwest to southeast and approximately 15,500 feet long and 500 feet wide, serves as the primary runway. The east-to-west leg, approximately 10,000 feet long and 500 feet wide, and north-to-south leg, 6,650 feet long and 300 feet wide, are no longer operational runways. Short perpendicular taxiways connect the primary runway to a parallel flightline, an 8,000-foot long by 800-foot wide apron lined with hangars and support buildings along the northernmost edge. The SAC Ground Alert Facility is located in the southeast corner of the base, near the southernmost end of the main runway.

Buildings and structures within the boundaries of the SAC Ground Alert Facility NHL include a multi-purpose "alert crew building," two alert aprons (in a one-and-a-half Christmas tree configuration), three taxiways, ten jet blast deflectors, a road system, security fencing, alert area lighting, a small guard shack or "traffic check house," remnants of a tennis court, and a boiler and emergency generator building. The alert crew building's location between the two alert aprons facilitated access to aircraft staged on either apron.

The period of national significance for the SAC Ground Alert Facility at Mountain Home AFB extends from 1958, when construction began on the facility, to 1965, the end of its period as a SAC ground alert facility. Contributing resources within the boundaries of the facility include the Alert Crew Building (Air Force Building 291), Alert Apron North (Air Force Building 31020), Alert Apron South (Air Force Building 31021), Taxiways B, C, and D (using Mountain Home AFB nomenclature), and the Alert Facility Road System (See Map 3 Mountain Home AFB Ground Alert Facility NHL Site Layout and Map 4 Mountain Home AFB Ground Alert Facility NHL Contributing Resources). Non-contributing buildings and structures within the facility boundaries include ten jet blast deflectors, security fencing, two alert area lighting systems, traffic check house, remnants of a tennis court, and a boiler and emergency generator building, all of which were constructed after the period of national significance (see Map 3 Mountain Home AFB Ground Alert Facility NHL Site Layout).[85]

Contributing Resources

Associated Air Force identification numbers for the various resources are noted in the parentheses where applicable.

Alert Crew Building (Air Force Building 291; Contributing Building)

Construction began on the Alert Crew Building, referred to as the "Readiness Crew Building" on original drawings, at Mountain Home AFB in 1958 and was completed in 1960. Plans followed a standardized design primarily developed by the Leo A. Daly Company, with some input from the U.S. Army Corps of Engineers. The purpose behind the alert building, the Air Force explained during military construction authorization hearings, was to consolidate crew activities and assure "the immediate availability of necessary flying personnel, ground crews and security forces to the alert aircraft at all times."[86] The result, a self-contained building with its own source of power, provided sleeping space, dining facilities, briefing rooms, lounges, study rooms, and air operations office space for personnel assigned to alert duty.

Mountain Home AFB received the largest, 150-person capacity version of an alert crew building to support a medium bomber wing (B-47s) and associated refueling tanker squadron. The two-story building follows a generally rectangular plan, with a 242-foot long by 78-foot wide reinforced-concrete lower level under a 160-foot long by 78-foot wide concrete block upper level finished with concrete plaster. Only the upper of the building's two-stories is visible. The lower level sits approximately 6-feet below grade, with earth fill covering the remaining height of the walls up to the level of the upper floor. The partially belowground construction provided some measure of protection from bomb or missile explosions, but was primarily intended to insulate sleeping quarters from the sound of aircraft operating on the nearby alert aprons, taxiways, and runways.[87] The combined below grade-earth fill design gained the protective and sound damping benefits of the earth while lessening the cost of excavation, decreasing potential adverse effects of ground water intrusion, and reducing the slope of the exit tubes from the lower level.

[85] All uses of "Air Force Building" number represent designations used by the Air Force at Mountain Home AFB.
[86] House of Representatives, *Military Construction Authorizations for 1959*, 232.
[87] Ibid, 236.

The design is largely symmetrical on its lengthwise southwest-to-northeast axis, except for a slightly different exit and ramp configuration on the northeast elevation, a projecting mechanical room, and a rectangular, concrete stack that served the lower level's boiler room. The building's lack of fenestration and decoration is particularly austere given its function to house over one hundred men for several days of 24-hour alert duty. Metal fascia running around the perimeter of the low-pitched, built-up gable roof provides one of the few architectural elements that emphasize horizontal lines. At some point the original exit doors with glazing in the upper third were replaced by metal types with narrow vision light glazing, now covered over with bolted metal plates. Other exterior alterations within the last two decades include the addition of security lights, red light beacons, cameras, antennas, and roof vents. Concrete curbing and a strip of pavement extend around the building's perimeter. A rusting flagpole stands at the northeast corner.

Several elements of the alert crew building's design reflected its SAC mission and Cold War context. The building's most distinctive feature, the twelve corrugated-metal "egress" tubes ending in rectangular concrete-framed doorways or bulkheads, were intended to provide rapid exit from all sides of both the ground and upper floors in the event of an alert alarm. Ten of the twelve egress tubes slope upward from the lower level: three on each of the lengthwise (northwest and southeast) elevations, and two each on the more narrow widthwise (southwest and northeast) elevations. The remaining two tubes lead from a centered door on each widthwise end of the upper level to a ramp. Six other doorways on the upper floor with uncovered ramps provided additional exit points. At some SAC bases with more inclement weather all exits were through egress tubes; at some bases in warmer climates the tubes were omitted entirely. Each outlet served one of the long hallways that transected the upper and lower levels to facilitate exit from the building. Exits on the building's southeast side are located just 80 feet from the nearest alert pad, and the building's position between the two alert aprons provided direct routes to each, typically by vehicles parked on the pavement surrounding the building's perimeter or a parking strip on the northwest side.

The upper level originally contained the building's active space, including a briefing room, offices, library and reading room, restrooms, kitchen, and separate dining and lounge areas for officers and airmen. Downstairs was dedicated primarily to sleeping quarters, with two types of bedrooms—forty larger rooms, each approximately 15 feet by 16 feet 2 inches intended for three or two beds and fourteen smaller single-bed units, each approximately 9 feet 9 inches by 16 feet 2 inches—restrooms, showers, and a mechanical room.[88] Doors to all bedrooms opened to one of two long lengthwise corridors. The lengthwise hallways were transected by three widthwise hallways, all five terminating at an exit ramp. According to finish schedules, whereas lower level walls were simply exposed concrete or concrete block with plaster ceilings, several upper level rooms such as the briefing areas, lounges, dining rooms, and vestibules were furred for gypsum board and had acoustical tile ceiling panels. The cement floors in most areas were covered with "resilient" tile. Crew quarters and restrooms of the lower level had solid wood doors, while the more operational, recreational, and galley areas had wood doors with glazing in the upper third. Alterations to the alert building's interior since the period of significance include application of wood paneling and wallpaper to some wall surfaces, removal of some of the original floor tiles, the addition of a partition wall in the dining area, removal of eight walls between lower level bedrooms to create larger spaces, removal of the upper half of a wall in the lower level to convert a bedroom into an informational area, replacement of original lighting fixtures, conversion of one restroom for use by women, and the removal of all kitchen and laundry equipment. Vandalism, rodent intrusion, and lack of use has resulted in broken door windows, deterioration of wall surfaces, holes in the walls, remediation, and water leaks in some

[88] Leo A. Daly Company, "Readiness Crew Building–150 Men; Lower Floor Plan Section," Drawing AW 30-11-14, Sheets S-2–4, April 1958; and "Readiness Crew Building–150 Men; Lower Floor Plan Section," Drawing AW 30-11-14, Sheets S5–7, April 1958, held at Mountain Home Air Force Base, 366th Civil Engineering Squadron.

areas.[89]

Although unused for several years, the Alert Crew Building retains a high degree of integrity. The building stands in its original *location* at the southernmost end of the main runway at Mountain Home AFB, and it has maintained character-defining features of the standardized SAC Cold War alert crew building *design*; specifically the low-profile, windowless, upper level over an earth-fill, partially subgrade lower level, rectangular form, and rapid egress tubes and ramps. The building's interior remains generally consistent with the original floor plan, with extant offices, briefing rooms, and lounge areas in the upper level, and bedrooms and bathrooms still lining the axial hallways of the lower level that lead to exit tubes. Minor interior alterations to the original design include the installation of windows in the wall separating the briefing room from the reading room, the addition of a partition wall in the dining area, removal of eight walls between bedrooms to create larger training and briefing rooms, and conversion of one of the restrooms for use by women. Overall, the interior still represents the essential aspects of the original design in terms of the types and locations of room, divided between sleeping quarters downstairs and active areas upstairs, all connected to hallways to facilitate quick exit.

Most exterior *materials* are original. These include the concrete block upper level and stack, metal fascia along the roof parapet, corrugated-metal egress tubes and concrete doorframes, concrete ramps, metal railings, and above-grade earth fill against the poured concrete walls of the lower level. Non-original materials include the doors and much of the roof-mounted equipment such as antennae, lights, and vents—roofing material and wall plaster replacements in the course of later maintenance are generally in kind. Many original interior materials remain in place, including concrete block walls, doors, and some built-in features such as shelving and platforms. Alterations to interior spaces are generally minor and only minimally affect the original design, including the remodeling of most bathrooms, some changes in lighting fixtures, the application of paneling or wallpaper to wall surfaces on some rooms and offices, the removal of some walls between bedrooms, the removal of kitchen and laundry appliances, and the removal of some lower floor tiles as part of environmental remediation work.

Workmanship represents typical mid-twentieth-century construction methods in the United States using common mass manufactured materials such as poured-in-place concrete, concrete masonry unit blocks, corrugated-metal sheeting, and metal fascia. Few changes have altered the original *setting* of the Alert Crew Building. Minor additions of a boiler and emergency generator building and traffic check house and the removal of the original security fencing were made to the immediate area after the period of significance, but the building retains important spatial and visual relationships to the Alert Aprons, Taxiways, Alert Facility Road System, and base as a whole.

The building's *feeling*, or expression of a certain era of the Cold War, comes through a combination of materials and general design elements representative of the 1950s and 1960s—particularly in military applications—such as concrete, rectangular form, lack of ornamentation, low profile, and windowless construction that reflected a concern for potential attack during a period of high tension with the Soviet Union. Similarly, other design details, such as the location near the end of the runway, egress tubes and ramps and subterranean sleeping quarters of a self-contained facility, show the Alert Crew Building's *association* with the Air Force and a SAC alert program developed to get several bomber crews to their aircraft at a moment's notice. Although not currently in use, the building's location within an active Air Force base strengthens its association with its past role as a SAC staging area.

[89] Leo A. Daly Company, "Readiness Crew Building–150 Men; Room Finish Schedule," Drawing AW 30-11-14, April 1958, held at Mountain Home Air Force Base, 366th Civil Engineering Squadron.

Alert Apron North (Air Force Building 31020; Contributing Structure)
Alert Apron South (Air Force Building 31021; Contributing Structure)
Taxiway B, C, D (Contributing Structures)

From the alert crew building, aircrews raced by foot and vehicle to aircraft staged on nearby alert aprons. The apron, a general term for an area where aircraft are parked, serviced, loaded and unloaded, and refueled, in this case consisted of an arrangement of aircraft hardstand parking pads branching off from two parallel taxiways or "trunks," at 45-degree angles. The hardstand parking pads, also called "stubs" in this configuration, referred to dead-end paved areas for individual aircraft that connected to a common taxiway. Seen from the air, the herringbone pattern formed by the stubs on either side of the trunk gave rise to the name "Christmas tree." The taxiways, defined paths established for the taxiing of aircraft from one part of an airfield to another, were both part of the apron (the trunk section that connected to the stubs) and separate pathways to the main runway and flightline as described in more detail below.

The alert aprons at Mountain Home AFB comprise one full, largely symmetrical seven-stub tree (Alert Apron South) and one asymmetrical tree with all of its four stubs on the south side of its trunk (Alert Apron North). Each apron has 150-foot wide and 245-foot long concrete stubs, which reflect the initial design calculus for a medium bombardment wing supported by refueling tankers. In addition to the concrete section of stub (distinguished here from the whole stub with the term pad), designed to bear the weight of a fully laden bomber, a strip of asphalt pavement, 50-feet wide on each side and 100-feet wide on the rear, runs around three sides of the pad to provide extra space for ground support augmented by smaller rectangular sections of concrete, 60 feet by 50 feet and 60 feet by 25 feet, that adjoin the main concrete pad.

The seven stubs of the southern apron join the concrete "trunk" of the tree, a 100-foot wide and approximately 1,600-foot long taxiway (C) on a west-to-east orientation with 50-feet wide asphalt shoulder pavement. Taxiway C intersects with other taxiways leading to the southernmost end of the main runway. Similarly, the four stubs of the northern apron, also oriented on a west-to-east axis, connect to a 100-foot wide, 1,825-foot long concrete taxiway (D) with asphalt shoulders that directly leads to the same end of the runway. A third taxiway (B) is a 100-foot wide, 2,250-foot long extension of a taxiway from the southernmost end of the flightline apron to the alert aprons. Taxiway B runs parallel to the main runway, intersects Taxiway D, and extends westward in a straight line, all the way to the mail flightline apron.

A painted centerline stripe composed of a yellow line between two more narrow black lines, runs down the center of the taxiways to provide a guide for aircraft transiting to and from the alert aprons. Side stripes consisting of a wide yellow stripe along the edge of the concrete section of the taxiway and perpendicular yellow strips 25 feet long, typically at 100-foot spacing intervals except in curved sections, demarcates the asphalt shoulders and the edge of load bearing surface. Navigation lights are embedded in the shoulders at approximately 95-foot intervals. The Air Force still uses the alert aprons and taxiways periodically for staging aircraft.

The one-and-a-half Christmas tree Alert Aprons occupy their original *location* at the southernmost end of the main runway at Mountain Home AFB, and retain character-defining features of the standardized SAC Cold War *design*; specifically the dimensions, 45-degree stub configuration, number of stubs, direct taxiways to take-off positions at the end of the runway, and shoulder elements. The original *materials* used to construct the alert aprons, and taxiways, primarily concrete and asphalt, remain to some degree but have been resurfaced, repaired, and replaced in kind in some instances since the period of significance. *Workmanship* represents new methods developed in the early 1950s when the Air Force faced the massive project of upgrading and extending its airfields to handle heavier new B-36, B-47, and B-52 bombers, including mechanized mixing, pouring, and

finishing of large volumes of concrete.[90] Few changes have altered the original *setting* of the apron and taxiway areas. Minor additions of a boiler and emergency generator building and traffic check house and the removal of the original security fencing were made to the immediate area after the period of significance, but the alert aprons and taxiways retain important spatial and visual relationships to each other, the Alert Facility Road System, the Alert Crew Building, and main runway. The alert aprons and taxiways' *feeling*, or expression of a certain era of the Cold War, comes through a combination of materials and general design elements representative of the 1950s and 1960s—particularly in military applications—such as concrete construction, Christmas tree form, and relationship to other elements of the alert facility area and runway. The short distances from the alert building to stubs and direct connections from stubs to the runway evoke the potential need for urgent response in an era when nuclear conflict appeared possible. Similarly, other design details, such as the position at the end of the runway, dimensions, and stub configuration and numbers, show the alert aprons and taxiways' *association* with the Air Force and a SAC alert program developed—in the case of Mountain Home AFB—to launch one-third of the base's B-47 bombers within fifteen minutes' notice. The continued use of the alert aprons and taxiways for Air Force aircraft strengthens its association with its past role as a SAC staging area.

Alert Facility Road System (Contributing Structure)

The Air Force constructed a road system that served the alert building and aprons as part of the original construction of the alert facility. This original road system is still extant, although slightly altered by later repaving and the addition of a short section. The main road into the secure facility branches off of an existing road around the perimeter of the base built during its original construction in WWII. This two-lane, asphalt road (2,225 feet long, 25 feet wide) leads to the alert building. Various single-lane branches, between 12 and 15 feet wide, connect to each of the stubs of the alert aprons, as shown in Map 4. These asphalt apron access roads are divided between a central cluster between the northern and southern aprons, and outer roads that serve the other northernmost and southernmost sides of the aprons. Short individual stub access roads in the inner section, typically between 225 feet and 250 feet long, generally run perpendicular from either the primary two-lane entry road or a 1,430-foot long trunk road that extends west from it. Other short perpendicular stub access roads extend from an approximately 6,020-foot long outer perimeter road that provides access to the northernmost and southernmost stubs. The road system also includes an approximately 150-foot long by 100-foot wide parking area adjoining the main entry road near the original security gate. This parking area, no longer used, allowed crewmembers on alert duty to visit with family members outside the secure facility. One approximately 690-foot, single-lane section of road between about the midpoint of the main entry road and the northern outer road may have been added after the period of significance, and the main entry road has been repaved over time.

In 2018, the original Alert Facility Road System showed signs of a lack of maintenance in recent years. Although cracked in places, subject to vegetation growth, and weathered, the asphalt pavement still distinctly outlines the various routes designed to provide rapid access to bombers on the alert aprons.

Although only partially in current use, the original Alert Facility Road System retains sufficient integrity to convey its significance as a vital means of quickly transporting air and maintenance crews, material, and equipment to alert bombers. The roads follow their original *location*, connecting the various elements of the alert facility with the perimeter road at the southernmost end of the main runway at Mountain Home AFB, and retain character-defining features of the *design*; specifically the dimensions, route connecting the stubs with the Alert Crew Building and outer perimeter road. The original *materials* used to construct the Alert Facility Road System, primarily asphalt, remain to some degree but have been resurfaced, repaired, and replaced in kind in

[90] "Pavers Rebuild Idaho Air Base," *EM-Kayan* (November 1954): 6.

some instances since the period of significance. *Workmanship* represents typical methods of mid-twentieth-century construction involving asphalt pavement for one-lane roads. Few changes have altered the original *setting* of the Alert Facility Road System. Minor additions of a boiler and emergency generator building and traffic check house and the removal of the original security fencing were made to the immediate area after the period of significance, but the road system retains important spatial and visual relationships to the alert aprons, taxiways, and the Alert Crew Building. The road system's *feeling*, or expression of a certain era of the Cold War, comes through its configuration and relationship to other elements of the alert facility area and runway. Similarly, other design details, such as the position at the end of the runway, dimensions, and layout to support each pad, show the Alert Facility Road System's *association* with the Air Force and a SAC alert program developed to launch bombers within fifteen minutes' notice.

Noncontributing Resources

Associated Air Force identification numbers for the various resources are noted in the parentheses where applicable.

Traffic Check House (Air Force Building 289; Noncontributing Building)

The Air Force built this small guardhouse to monitor vehicular traffic near the northeast corner of the Alert Crew Building in 1969. Approximately 6 feet by 6 feet square in plan, the guardhouse has a 2-foot high concrete block base topped by a wide concrete lug sill that wraps around all sides. Originally the guardhouse had fenestration on three sides above the lug sill, which is now boarded up. Wood louvers over the window and glazed door on the front, northeast elevation and an overhanging shed roof provided ventilation and some measure of shade for personnel assigned to the checkpoint. This is a noncontributing resource because it was built after the period of national significance.[91]

Security Fencing (Noncontributing Structure)

The original security fencing surrounding the perimeter of the alert facility is no longer extant. The current chain-link security fence topped by three-strand barbed wire in a V-shape stands approximately 7.5 feet high. Installed after the period of significance, the current fencing initially follows the original fence line from the northwest corner of the North Alert Apron then easterly and parallel to the access road to a point where it deviates from the original fence line along a route that separates the north alert apron from the alert building and southern alert apron for a total length of approximately 5,090 feet. The original fencing did not divide the two alert aprons, instead the fence line maintained a path approximately 50 feet from the outer perimeter alert apron access road to a termination point at the western corner of the South Alert Apron. A security gate, no longer extant, controlled access to the secure ground alert area where the fence crossed the main trunk road that led to the alert crew building. Although not definitively known, the original fencing was likely a similar height and type, a three-strand barbed wire and chain-link fence.[92] This current security fence is a noncontributing resource because it was built after the period of national significance.

Alert Area Lighting (Noncontributing Structures)

Five light towers and thirty wooden pole-mounted lights provide lighting for the alert aprons and road system. For NHL resource counting purposes, the system of five light towers is counted as one structure, and the system

[91] The clarification that each noncontributing resource is noncontributing because of a construction date after the period of significance on a resource-by-resource basis was added per the National Park Service editor.

[92] A section of the original fence is shown in a photograph associated with the article "Major Role Played by MHAFB's Weathermen," *Strata Courier*, April 14, 1960, 19.

of thirty wooden pole-mounted lights is counted as another structure.

The five light towers are positioned on a line between the stubs of the North Alert Apron, one on each side of the four stubs (Map 3). Each of the approximately 75-foot tall light towers consists of a metal pole mounted on a concrete pedestal with one or two arms of spotlights at the top. The number of spotlights varies between a single arm of three lights and two arms of four lights each. The extant system of five light towers is a noncontributing resource because it was installed after the period of national significance.

Twenty-nine of the approximately 50-foot tall wooden pole lights are spaced at 100-foot intervals just inside the current security fence line (Map 3). A single wooden pole light is located to the rear of one of the North Alert Apron stubs, the one second from the eastern end. Each of the wooden poles has a single metal box-type light attached to the top. Some of the poles also function as utility lines. An important component of securing the ground alert facility, the original perimeter lighting likely followed the original fence line. The specific type and the location of the original lighting is unknown. The extant system of twenty-nine pole-mounted lights is a noncontributing resource because it was installed after the period of national significance.

Boiler and Emergency Generator Building (Air Force Building 31291; Noncontributing Building)

This single-story shed, approximately 15 feet wide by 16 feet 6 inches long, was added in 2001 to house a boiler and emergency generator that supported the Alert Crew Building. Metal siding on the shed has a vertical box rib profile, broken only by a centered set of solid double doors. Two metal stacks that serve the boiler and generator extend through the low pitched, nearly flat, gable roof. This is a noncontributing resource because it was built after the period of national significance.

Tennis Court (Noncontributing Structure)

The remains of a tennis court added in 1985 cover a 48-foot wide by 108-foot long rectangular area approximately 70 feet northeast of the Alert Crew Building. The asphalt surface is cracked in several places, and the net, court markings, and fence enclosure are no longer extant. This is a noncontributing resource because it was built after the period of national significance.

Blast Deflectors (Noncontributing Structures)

Several corrugated metal jet blast deflectors—ten total—stand near the end of some of the alert apron stubs. When the first jet-powered bomber, the B-47, replaced the piston-powered B-29 at Mountain Home AFB in 1953, the Air Force had a new problem to contend with: jet blast. To protect personnel, other aircraft, pavement, and vegetation from the heat and pressure of jet blast, the Air Force experimented with several kinds of blast deflectors until adopting a type produced by Lynnco (founded by B. Stanley Lynn) as a standard in 1957.[93] Early blast deflectors had a relatively short life due to the nature of their service. Although blast deflectors were likely installed during original construction of the facility, the extant deflectors date to after the period of significance.

One extant blast deflector located on one stub of the south tree nearest to the Alert Crew Building closely resembles a design patented by Lynn in 1984 for an improved deflector aimed at gaining longer life in high-thrust, high-performance military applications and reducing turbulence that built up behind the deflector.[94] This blast deflector, a single structure approximately 145 feet long and 12 feet high, consists of two separate corrugated metal deflecting surfaces which overlap. The lower deflecting surface curves up to direct jet blast

[93] Blast Deflectors, Inc., "Blast Deflector Fences," c.1958, 4, http://pdf.aeroexpo.online/pdf/blast-deflectors-inc/historic-blast-deflector-fences/168550-627.html.

[94] B. Stanley Lynn, Blast Deflecting Fence. U.S. Patent 4,471,924 filed July 12, 1982, and issued September 18, 1984.

upward, whereas the upper deflecting surface is straight, positioned some two feet behind the curved section at an angle of approximately 30 degrees from vertical. The corrugated metal sections are supported by metal framework and bolted to the rear edge of the stub. This is a noncontributing resource because it was built after the period of national significance.

The groups of blast deflectors located on the stubs of the northern tree are of a slightly different type, one similar to Lynn's original 1957 design.[95] These deflectors, composed simply of a curved corrugate metal surface supported by a metal framework, are fixed to the rear edge of each of the four stubs in pairs of 72 feet long, eight feet high structures except for one stub directly north of the Alert Crew Building, which has three eight-foot high deflectors in 18 foot, 42 foot, and 72 foot lengths.[96] These are noncontributing resources because they were built after the period of national significance.

Overall Integrity

In addition to the high degree of integrity of the individual contributing resources of the SAC Ground Alert Facility at Mountain Home AFB (the Alert Crew Building, Alert Aprons, Taxiways, and the Alert Facility Road System), the facility as a whole collectively conveys its significance as an embodiment of the 15-minute SAC alert concept.

The site maintains its original *location* at the southernmost end of the main runway at Mountain Home AFB, distinctively positioned to minimize distance and time to take-off. The facility retains essential characteristics of the *design*, including the placement of the Alert Crew Building between and within a short distance of the Alert Aprons, a road network to speed access to more distant stubs, size and dimensions of a standardized building and alert apron configuration to support a medium wing of B-47 bombers supported by refueling tankers. The Boiler and Emergency Generator Building and Check Point, added after the period of significance, only minimally diminish the integrity of design due to the relatively small scale of the ancillary buildings. Original *materials* and *workmanship* are largely retained and are discussed more fully in the individual sections for each contributing resource. Few changes have altered the original *setting* of the SAC Ground Alert Facility. Minor additions of a boiler and emergency generator building and traffic check house and the removal of the original security fencing were made to the immediate area after the period of significance, but the various contributing resources retain important spatial and visual relationships to each other. Although noncontributing, some of the resources built or installed after the period of significance, such as the blast deflectors, security lights, and fencing represent basically in-kind or similar updates of original elements. Whether through the Alert Crew Building with its egress tubes and many exits, Christmas tree alert aprons designed for expedient movement of aircraft, or extant security fencing, the site distinctly captures the *feeling* of urgency, alertness, vigilance, and retaliation that underlay a specific form of deterrence during the Cold War, one that relied on bombers with nuclear bombs to deter a potential Soviet first strike with ICBMs. Similarly, other design details, such as the location within an active Air Force base, position at the end of the runway, dimensions to support bombers, show the Ground Alert Facility's *association* with the Air Force and a SAC alert program developed to launch bombers within fifteen minutes' notice.

[95] Blast Deflectors, Inc., "Blast Deflector Fences."
[96] Interview with Noelle Shaver, Cultural Resource Program, 366th Civil Engineer Squadron, Mountain Home AFB, April 2018.

7. BIBLIOGRAPHICAL REFERENCES AND OTHER DOCUMENTATION

Adams, Chris. *Inside the Cold War: A Cold Warrior's Reflections*. Alabama: Air University Press, 1999.

Dase, Amy E. *Peace Is Our Profession: The Mountain Home Air Force Base Oral History Project. Reports of Investigations No. 167*. Austin, TX: Prewitt and Associates, Inc., December 2012.

Dase, Amy E., and Stephanie L Katauskas. "Mountain Home Air Force Base Bomber Alert Facility." National Register of Historic Places Nomination Form. Washington, D.C.: U.S. Department of the Interior, National Park Service. May 2012 (draft).

Futrell, Robert Frank. *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force, 1907–1960.* Washington, D.C.: U.S. Government Printing Office, 2002.

Gaddis, John Lewis. *The Cold War: A New History*. New York: The Penguin Press, 2005.

Goralski, Robert. *World War II Almanac, 1931–1945: A Political and Military Record*. New York: G. R. Putnam's Sons, 1981.

Habermehl, C. Mike and Robert S. Hopkins III. *The Boeing B-47 Stratojet: Strategic Air Command's Transitional Bomber*. Manchester: Crecy Publishing, 2018.

Hopkins, J. C., and Sheldon A. Goldberg. *The Development of Strategic Air Command, 1946–1976*. Omaha, NB: Office of the Historian, Headquarters Strategic Air Command, 1976.

LaFeber, Walter. *America, Russia and the Cold War, 1945–96*. New York: McGraw Hill, 1996.

Leffler, Melvyn P. *For the Soul of Mankind: The United States, the Soviet Union, and the Cold War*. New York: Hill and Wang, 2007.

Leffler, Melvyn P., and Odd Arne Westad, eds. *The Cambridge History of the Cold War*. 3 vols. Cambridge, UK: Cambridge University Press, 2010.

Leonard, Barry, ed. *History of Strategic Air and Ballistic Missile Defense, 1945–1972*. 2 vols. Washington, D.C.: Center of Military History, United States Army, 2005.

Lewis, Karen, Katherine J. Roxlau, Lori E. Rhodes, Paul Boyer, and Joseph S. Murphey. *United States Air Force Air Combat Command and the Legacy of the Cold War: A Systemic Study of Air Combat Command Cold War Material Culture*. Laramie, WY: TRC Mariah Associates, Inc., 1995. Prepared for Headquarters, Air Combat Command, Langley Air Force Base, VA.

Loftin, Lawrence K., Jr. *Quest for Performance: The Evolution of Modern Aircraft*. Washington, D.C.: National Aeronautics and Space Administration, 1985.

Malik, John. *The Yields of the Hiroshima and Nagasaki Nuclear Explosions*. Los Alamos, NM: Los Alamos National Laboratory, 1985.

National Park Service. "Draft Reconnaissance Survey of Strategic Air Command Bomber Alert Facilities," May 1997. Prepared for U.S. Air Force Museum, Wright-Patterson Air Force Base, OH.

Peace . . . is our Profession: Alert Operations and the Strategic Air Command, 1957–1991. Offutt Air Force

Base, NE: Office of the Historian, 1991.

"Presto! . . . Here's Your New 'Trailer Town.'" *The EM-Kayan Magazine of "M-K"* 2, no. 4 (June 1943).

"Ready for Jet Heavyweights: Pavers Rebuild Idaho Air Base." *The EM-Kayan Magazine of "M-K"* 13, no. 9 (November 1954).

Salmon, John S. "Protecting America: Cold War Defensive Sites." National Historic Landmark Theme Study. March 2017 (draft).

Schaffel, Kenneth. *The Emerging Shield: The Air Force and the Evolution of Continental Air Defense, 1945–1960*. Washington, D.C.: U.S. Air Force Office of Air Force History, 1991.

"Stout Stands for Bombers on Alert." *The EM-Kayan Magazine of "M-K"* 17, no. 10 (December 1958).

Strategic Air Command Unit Mission and History Summaries. Offutt Air Force Base, NE: Office of the Historian, 1988.

Tibbets, Paul W. *Return of the Enola Gay*. Columbus, OH: Mid-Coast Marketing, 1998.

Van Citters, Karen. "Mountain Home Air Force Base, Ready Alert Facility (Building 291)," HABS No. ID-118-E. Washington, D.C.: Historic American Buildings Survey, National Park Service, 2013.

Wainstein, L., C. D. Cremeans, J. K. Moriarty, and J. Ponturo. *Study S-467, The Evolution of U.S. Strategic Command and Control and Warning, 1945–1972*. Arlington, VA: Institute for Defense Analysis, 1975.

Warnock, A. Timothy, Daniel L. Haulman, Forrest L. Marion, and Jeffrey P. Sahaida. Edited by Frederick J. Shaw. *Locating Air Force Base Sites: History's Legacy*. Washington, D.C.: Air Force History and Museum Program, 2004.

Weitze, Karen J. *Cold War Infrastructure for Air Defense: The Fighter and Command Missions*. Sacramento, CA: KEA Environmental, Inc., 1999. Available as a PDF file at the Mobile Military Radar Web site, www.mobileradar.org/Documents/1999-11-02132.pdf. Prepared for Headquarters, Air Combat Command, Langley Air Force Base, VA.

_____. *Cold War Infrastructure for Strategic Air Command: The Bomber Mission*. Sacramento, CA: KEA Environmental, Inc., 1999. Prepared for Headquarters, Air Combat Command Langley Air Force Base, VA.

_____. *Historic Facilities Groups at Air Combat Command Installations: A Comparative Evaluation of Selected Resources USAF-Wide*. Plano, TX: Geo-Marine, Inc., 2010. Prepared for Headquarters, Air Combat Command (ACC), Langley Air Force Base, VA.

Wohlstetter, Albert. "The Delicate Balance of Terror." *Foreign Affairs* 37, no. 2 (January 1959): 211–234.

Zaloga, Steven J. *The Kremlin's Nuclear Sword: The Rise and Fall of Russia's Strategic Nuclear Forces, 1945–2000*. Washington D.C.: Smithsonian Books, 2014.

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