PROTECTING AMERICA:

COLD WAR DEFENSIVE SITES

A NATIONAL HISTORIC LANDMARK THEME STUDY

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Produced by:
The National Historic Landmarks Program
Cultural Resources
National Park Service
U.S. Department of the Interior
Washington, D.C.

October 2011

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Historic Contexts

Foreword

On January 6, 2009, Congressman Rush Holt introduced H.R. 146, the Omnibus Public Land Management Act of 2009, in the House of Representatives. The bill was entitled "An act to designate certain land as components of the National Wilderness Preservation System, to authorize certain programs and activities in the Department of the Interior and the Department of Agriculture, and for other purposes." Cosponsors included Congressmen Earl Blumenauer, John Dingell, Eni Faleomavaega, Maurice Hinchey, James Langevin, James McGovern, Gary Miller, Patrick Murphy, Steven Rothman, and Peter Welch. The bill was referred to the House Natural Resources Committee, which reported it favorably to the House of Representatives on March 5. The House already had approved the bill on March 3, and the Senate approved it with changes on March 19. The House voted to approve the amended bill on March 25. President Barack Obama signed the bill into law (P.L. 111-11) on March 30, 2009.

Section 7210 of the Act authorized a Cold War Sites Theme Study. The study was first proposed by Representative Joel Hefley (H.R. 107) and Senator Harry Reid (S. 1257) in 2001, but the legislation had not passed then. Section 7210 contained the same language as the 2001 bills: "The Secretary [of the Interior] shall conduct a national historic landmark theme study to identify sites and resources in the United States that are significant to the Cold War." The Act directed the Secretary to consult with federal and state historic preservation officers, among others, and to consider the following resources while gathering information and conducting the study:

> (A) The inventory of sites and resources associated with the Cold War compiled by the Secretary of Defense under section 8120(b)(9) of the Department of Defense Appropriations Act, 1991 (Public Law 101-511; 104 Stat. 1906; and
> (B) Historical studies and research of Cold War sites and resources, including—
> (i) Intercontinental ballistic missiles;
> (ii) Flight training centers;
> (iii) Manufacturing facilities;
> (iv) Communications and command centers (such as Cheyenne Mountain, Colorado);
> (v) Defensive radar networks (such as the Distant Early Warning Line);
> (vi) Nuclear weapons test sites (such as the Nevada test site); and
> (vii) Strategic and tactical aircraft

During the course of the study, tribal historic preservation officers were contacted, as well as federal and state historic preservation officers. Communications with the

Department of Defense revealed that no single inventory of Cold War sites had been compiled; rather, since 1991 several topical surveys and inventories have been conducted and prepared. Several of them, including historic contexts, are available on Web sites and are listed in the Bibliography in this theme study.

Because the Cold War era (1945–1991) is so recent, and the universe of potentially related properties is so vast, relatively few such properties have been identified, designated as National Historic Landmarks, or listed in the National Register of Historic Places. The majority of properties are fewer than fifty years old, and many have been demolished as sites have been deactivated or have been so altered as to be lacking in sufficient integrity for designation or listing. Although a few surveys have been made and several historic contexts have been written, there is an urgent need for more because the resources are disappearing.

The historic contexts section of this study is divided into three parts. The first part focuses on the origins and evolution of the Cold War from World War II until the death of Josef Stalin in 1953. This section discusses the ideological differences between the two principal adversaries, the dawn of the atomic age, and the weapons systems that each side developed. The second part concentrates on the Cold War at its coldest, as the United States and the Soviet Union appeared to settle into a period of endless provocations and proxy wars and the threat of nuclear annihilation often seemed likely to become a reality. By the end of this period, both sides had come to accept that matters could not be allowed to continue in these patterns, that a new way of dealing with each other had to be found. Détente was the first step. The third part brings the history of the Cold War to its conclusion, from the end of the Vietnam War and the beginnings of a thaw in relations because of presidential diplomacy, the rise of dissent in the Soviet Union (especially in Eastern Europe), and the final collapse of the Soviet economic and political structure.

This historic context should enable the researcher to understand the basic developments and the ways in which the weapons systems and defense programs of the United States were affected by international affairs and the political and military challenges of the Cold War era.

Although the Cold War touched virtually every aspect of life in the United States and abroad, the principal focus of this theme study is on the types of sites and resources described in Section 7210 of H.R. 146. Other important themes outside the scope of this study could be mentioned only briefly here—the home front, the influence of consumerism, the nuclear weapons complex, the civil defense system, the antiwar movement, and the movements for civil rights and other forms of social change, to name but a few. It is suggested that they be considered for future studies related to the Cold War.

Introduction

As World War II ended, the world entered what has become known as the Cold War—a term that financier and presidential advisor Bernard Baruch first used in a speech on April 16, 1947, to describe the increasingly chilly relations between the Soviet Union and the United States. In fact, although the two great powers were allied against Germany during World War II, relations between them had never been warm. The Soviets continued to resent the fact that America supported the Whites over the Reds during the Russian Revolution, when the United States invaded Murmansk, Archangel, and Vladivostok in 1918, engaged Soviet forces in combat, and remained on Russian soil until 1920. In America, Soviet communism was immediately seen as a threat to capitalism (the "Red Menace") and sparked the infamous Palmer Raids against suspected revolutionaries in 1920. The raids were just the first of several attempts by ambitious American politicians to whip up anticommunist hysteria during the twentieth century. Mutual suspicion and ideological opposition, then, typified the relations between the Americans and the Soviets from the beginning. The alliance of World War II was largely a marriage of convenience to oppose Hitler's fascism, which both sides agreed was the larger threat at the moment. Once the hot war ended, the United States and the Soviet Union resumed their previously distant relationship, but with new and dangerous elements to consider.

Two facts dominated the Cold War Era, which is defined for the purposes of this theme study as the period between 1945 and 1991: the United States and the West vied against the Soviet Union and its satellites in a global political and military struggle for supremacy, and the threat—sometimes seemingly the promise—of nuclear obliteration hung over all the Earth like the Sword of Damocles. Day in and day out for four and a half decades, the two sides maneuvered. Puppet states, proxy wars, espionage and counterespionage, overt and covert operations, subtle intimidation and raw violence, threats and bluster, public pronouncements and secret treaties, alliances and betrayals, paranoia and credulity, lies mixed with truth, smoke and mirrors—each side toyed with reality and illusion to gain advantage. To many people, the greatest delusion of all was the belief that mere mortals could somehow control the means of annihilation and keep the finger hovering over the button from ever pushing it. The world watched with white knuckles as time after time, each side slipped and slid closer to the fatal moment in a clumsy danse macabre. Would this be the day that one or both made a final miscalculation? In America, children gasped whenever television screens went black in the middle of an evening sitcom, the word BULLETIN dropped into view, and a grim voice intoned, "We interrupt this program for a special announcement." Were the missiles on their way? To most Americans, the Cold War was an era of constant low-grade fear and worry punctuated by unforgettable moments of sheer terror.

Outside the relatively safe haven of the United States, with its protective shield of missiles and long-range bombers and Distant Early Warning stations, however, much of the world's population experienced numbing fear every day. The grinding oppression of Soviet life, the secret police, the disappearances, the Gulag, the wars of "revolution" and "liberation," the episodes of wholesale slaughter, the trading of one despot for another,

crushed the spirits or took the lives of millions. For most of the Cold War, it appeared to Americans that the advantage lay with the Soviets, whose leaders plotted and schemed behind the Iron Curtain, safe from observation, and who supposedly orchestrated the International Communist Conspiracy, directed events at the minutest level, and always seemed a step ahead of the West. To them most Americans ascribed almost supernatural strength and confidence, the result of their steadfast faith in the unifying theory of communism and their unshakable conviction that history was on their side. The West, in contrast, seemed a mishmash of conflicting interpretations of "democracy," governments that operated in a chaotic spectrum ranging from constitutional monarchies to socialist states, and national leaders who squabbled openly with their peers as often as they cooperated with each other. The West, with its vaunted concern for the individual, its openness, and its reluctance to resort to violence, often appeared weak in contrast to the Soviets, with their alleged esteem of the group, their blatant lies and bluster, and their casual brutality. When Nikita Khrushchev appeared to brag, "We will bury you," behind the eruption of Western outrage lay the secret fear that he might be right.

And yet, as we know now, so much of what appeared as Soviet strength was a sham—a flimsy facade rotting from the inside out. With the perspective of hindsight and the revelations offered by declassified Soviet and Western archives, it is the eventual collapse of the Soviet Union that seems almost preordained, not the end of the West. The apparent strengths of the Soviet system—centralized control and a unified political and economic philosophy—were in fact its weaknesses. The end of the Cold War came swiftly in a cascade of unforgettable images as the Soviet edifice toppled. Television viewers around the world watched cheering East Berliners attack the despised Wall with sledgehammers and bare hands, while East German guards merely looked on instead of machine-gunning them to death. Russian president Boris Yeltsin stood atop a tank denouncing a coup attempt against Soviet leader Mikhail Gorbachev, and when the plotters, half drunk, held a press conference to announce that they had taken over because Gorbachev was "indisposed," the crowd laughed and the plotters' imminent failure was obvious in their stunned expressions. Another shocking image: Romanian tyrant Nicolae Ceausescu was booed and hissed off the podium by a throng of supposed supporters, his eyes wide in disbelief before the state-run television suddenly stopped transmitting. And in Wenceslas Square in Prague, a televised image quite the opposite: Alexander Dubcek walked onto a balcony to thunderous cheers, the personification of the triumph of hope over despair, back from the dead after Soviet tanks ground his Prague Spring into the dirt so many years earlier. The prelude to these scenes occurred, perhaps, in June 1979, when Pope John Paul II made his first visit home to Poland after his election and told the millions who flocked to see him despite Soviet disapproval: "Be not afraid." When the people ceased being afraid, the end came quickly.

Such scenes were unimaginable in 1945, of course, as World War II ground to an end and the Cold War began. Of the three great Allied commanders, only one—Soviet leader Josef Stalin—remained alive or in office when the Potsdam Conference began in July 1945. President Franklin D. Roosevelt had died in April, and his successor, Harry S Truman, probably knew less about America's atomic bomb than Stalin did. Prime Minister Winston S. Churchill was voted out of office in the midst of the conference,

replaced by Clement Atlee. It was Stalin who was best prepared of the three by experience and cunning to influence the postwar world. Because he considered the expansion of that influence as essential to the survival of the Soviet Union and the communist system in the face of perceived Western hostility, he was prepared to act. Atlee and Truman, however, were primarily concerned with rebuilding Europe and avoiding massive unemployment as their armies demobilized. Stalin had the initiative.

The United States, however, had "The Bomb," and that fact dominated everything else. Diplomatic pushing and shoving is common among the victors after a war as they seek to satisfy their constituencies' desire for revenge, reconstruction, and future security. The jousting is carried on with some recognition of semi-equality: all have suffered from the effects of war, all have challenges facing them on the home front, and all want to attain some semblance of peace and normality. The atomic bomb, however, made the United States "more equal" than the others, a fact that Stalin could not abide. First he had to get the bomb for the Soviet Union, and then he had to ensure that it was at least as threatening to America as its bomb was to his country, to restore the balance that the bomb had upset. Thus, as World War II ended, the Cold War era began.

The next four and a half decades comprised a period during which each side suspected that the other was preparing for preemptive nuclear attack, or at least was considering the possibility. Each new weapon and delivery system, each new defensive radar network, and every advance in technology was developed in reaction to or in anticipation of a similar program on the other side. Uncertainty bred fear and paranoia among leaders as well as among ordinary people. Each side assumed that ulterior motives were behind any action by the other side, and that nothing was as straightforward as it appeared. Propaganda and slogans frequently took the place of meaningful dialogue. To the United States, the Soviets appeared philosophically unified and willing and able to crush even the slightest dissent with sledgehammer brutality. Surely such a system had as its ultimate aim world domination and our imminent destruction? And even more fearsome than the outside threat was the enemy within: spies, real and imagined, who fed the anticommunist hysteria and witch-hunts of Senator Joseph McCarthy and the House Un-American Activities Committee (HUAC).

On their side, the Soviets feared that America and its allies, while eschewing overt violence, intended to surround, "contain," and finally smother them under the guise of "spreading democracy" around the globe. Stalin, then, when accused of seeking world domination, could suggest with some justification that the Americans sought the same goal for themselves. Stalin had a counterstrategy: dominate as much of Europe as possible, wait for the inevitable war to erupt among the capitalist nations (as communist theory predicted), watch as one European country after another adopted the communist ideology, and then pick up the pieces. The story of the Cold War from the Soviet side is about the slow failure of this strategy, which the Soviet leaders clung to for far too long in the face of reality. The war among the capitalists never happened; given the choice, one European nation after another chose capitalism (in some form) over communism; and as the decades rolled by, citizens of communist countries made the same choice, leaving

Soviet authorities with nothing but tanks and bullets to enforce their will, even among their satellites. In the end, the West clearly had won the war of ideas.

The West also won the military side of the Cold War—the arms race—even though the Soviet Union eventually reached parity in numbers of missiles. Despite early American fears of missile and bomber "gaps" (more imagined than real), and the shocking Soviet launches of the first satellite and the first human into orbit, the vibrant American economy could support weapons and missile development as well as produce an abundance of consumer goods. The centrally controlled Soviet economy could not do both, much to the chagrin of its leaders as its shortcomings became obvious to Soviet consumers. The Soviet leaders abandoned the "space race" early, and American innovations in technology as well as in weapons and rocketry eventually gave the United States such a lead in the arms race that although the Soviets reached missile parity, they could not catch up on technological matters. President Ronald Reagan's Strategic Defense Initiative, the "Star Wars" defense system, derided by many in America as unrealistic, was realistic enough to panic the Soviet leadership. Reagan insisted that SDI would make nuclear weapons obsolete, and if they were obsolete, then why not destroy them all? Shortly thereafter, Mikhail Gorbachev, the new Soviet leader who also favored a world free of nuclear weapons, took Reagan at his word and the two men ended the arms race essentially on American terms.

The final act of the Cold War came with the dissolution of the Soviet Union, as one satellite state after another declared its independence and replaced or reformed its government. Most of these changes took place without bloodshed—Romania being an exception—and the Soviet leadership accepted the inevitable. There was no repeat of the bloody crushing of the Hungarian rebellion of 1956, or the suffocation of the Prague Spring of 1968. Gorbachev did not have the stomach for raw force. Finally, on Christmas Day 1991, acknowledging reality, Gorbachev signed a decree officially dissolving the Soviet Union. The Cold War was over.

The United States as well as the Soviet Union created a vast infrastructure to support a complex of offensive and defensive weapons systems during the Cold War. This infrastructure included facilities and sites for developing, testing, manufacturing, and storing the weapons; expanded military installations for use as staging and training centers; a network of defensive radar and communications stations; and a host of command and control centers. Not all of these sites survived the Cold War, being scrapped or greatly altered as strategies and weapons systems changed. Those that did survive are now mostly obsolete, although some have been modified for other uses. This theme study is intended to help with the identification and evaluation of Cold War resources.

Part One: The Cold War to the Death of Stalin

In May 1945, the European phase of World War II came to an end. On May 7, German military leaders surrendered unconditionally to the Allies at Rheims, France. Because the Western nations were, in the opinion of the Soviets, overrepresented at this first surrender ceremony, a second one was held in Berlin, Germany, the next day. With the Soviets more or less satisfied, the attention of the Allies turned to the Pacific, where training was underway for the invasion of Japan. The cost of that invasion in terms of Japanese and Allied lives was estimated in the millions. Based on the Americans' experience during more than three years of war in the Pacific, as well as on Japanese propaganda and exhortations, there was no reason to believe that Japanese soldiers and civilians would defend their home islands with any less zeal than the troops who died almost to a man on Iwo Jima and elsewhere. A vast slaughter seemed imminent.[1]

The Americans, however, had a supposedly secret weapon, the atomic bomb. Working in collaboration with the British and benefitting from scientists who had fled anti-Semitism in Europe, they had succeeded where the Germans had failed. The Soviets, engaged in a fight to the death with the Nazis in the heart of Russia, had not had the wherewithal to make a serious effort to build their own bomb. On July 16, one day before the opening of the Potsdam Conference, the United States successfully exploded an atomic bomb in a test code-named Trinity, at the White Sands Proving Ground near Alamogordo, New Mexico. Josef Stalin, who had a nest of spies embedded in the principal research and development site at Los Alamos, New Mexico, was less than surprised when President Harry S Truman informed him of the test, since he had learned of the Manhattan Project long before Truman did. Stalin did profess to be surprised and appalled a short time later, however, when he learned that the bomb had been dropped on Hiroshima, Japan, on August 6. A second bomb followed on August 9, at Nagasaki, and the Japanese surrendered on August 14, ending World War II.[2]

The end of the war left many nations in a shambles, with economies demolished, infrastructures destroyed, industries ruined, cities and towns in rubble, political systems in chaos, and populations on the verge of starvation. Although America emerged relatively unscathed by comparison, and as the strongest country on the planet, Truman was not alone in his uncertainty about the nation's future. Would the economic recovery—the end of the Great Depression—secured by massive wartime spending continue? Would unemployment rise as the armed forces demobilized? Would the United States be able to maintain its dominance over an increasingly aggressive Soviet Union, which soon made clear its interest in controlling much of Europe and the Far East? Everywhere Truman looked, he encountered unanswerable questions. At a time when America might have exuded confidence about the future, instead it felt insecure. To safeguard the country's future, Truman believed that he could not allow any

[1] John Lewis Gaddis, *The Cold War: A New History* (New York, NY: The Penguin Press, 2005), 5–8.
[2] Charles R. Loeber, *Building the Bombs: A History of the Nuclear Weapons Complex*, 2nd ed. (Albuquerque, NM: Sandia National Laboratories, 2005), 63–76. For a selected inventory of research and development sites, see Appendix D, pages 00–00. For a selected inventory of test sites, see Appendix D, pages 00–00.

potentially hostile power to gain control of the resources of other nations through military, economic, or political means. Likewise, to avert future conflicts, all nations needed to be able to acquire what they needed on open markets. It would fall to America to guarantee that access while also looking out for its own interests, Truman realized. At least, he could reflect, it had the atomic bomb to aid in that undertaking.[3]

Stalin, on the other hand, feared that the United States would employ nuclear blackmail against the Soviet Union, probably because he would have used the same strategy had the Soviets developed the bomb first. Although Truman hoped that America's possession of the bomb would pressure Stalin, the Soviet dictator instead initiated a policy of "tenacity and steadfastness" to avoid appearing weak. And he redoubled his efforts to acquire his own bombs. Soviet scientists, assisted by spies in America and urged on by Stalin, worked frantically to catch up. On August 29, 1949, the Soviets exploded their first atomic bomb in a desert in Kazakhstan. Stalin made no official announcement, but the United States discovered evidence of the event on September 3. Now, Stalin believed, the balance of power had been restored. The Americans did not see it that way.[4]

To the United States and its allies, the communist world appeared unified, militant, and determined to expand its sphere of influence. In contrast, to the diverse Western nations, preoccupied with recovering from the war and expanding their consumer-driven economies, America's sole possession of the bomb seemed largely a security blanket rather than an overt threat against the powerful Soviet Union and its ambitions. To them, the bomb in Stalin's hands upset the balance and required a response. The arms race began in earnest.[5]

In reality, of course, the Soviet Union and international communism were not nearly as monolithic as the Americans feared. In Yugoslavia, Josef Tito ran the country as a Soviet ally, not as a puppet. In China, Mao Zedong cooperated with Moscow but agreed to focus on Asia while the Soviets concentrated their influence on Europe. In North Korea, Kim Il-sung cultivated a cult of personality that rivaled Stalin's and Mao's. In North Vietnam, Ho Chi Minh launched his long war against the French with Soviet support but with his own objectives, which included little subservience. These nuances were mostly lost on Americans, especially when spies were discovered giving nuclear secrets to the Soviets and anticommunist hysteria reached a fever pitch early in the 1950s.[6]

Although the Soviet and Western "spheres of influence" had existed before World War II, the boundaries were redrawn at the end of the conflict. In Europe, Stalin secured a foothold that he had lacked before. Germany was divided, while Poland, Czechoslovakia, Hungary, and Yugoslavia were Soviet satellites, and communist parties thrived in several Western European countries. In Asia, mainland China became communist as Chiang

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[3] Melvyn P. Leffler, "The emergence of an American grand strategy, 1945–1952," in Melvyn P. Leffler and Odd Arne Westad, eds., *The Cambridge History of the Cold War* (Cambridge, UK: Cambridge University Press, 2010), 1:67–68, 74–75.
[4] David Holloway, "Nuclear weapons and the escalation of the Cold War, 1945–1962," in ibid., 379–380; Gaddis, *Cold War*, 34–36.
[5] Gaddis, *Cold War*, 7–8.
[6] Gaddis, *Cold War*, 33–37, 39–40, 43–44.

Kai-shek fled to the island of Taiwan. The United States occupied Korea south of the 38th parallel and the Soviets supported the north. In addition to the new lines mandated at the end of the war, or the alignments created by occupation or revolution, some nations chose to align themselves either with the United States or with the Soviet Union. Most of Western Europe sided with America while Egypt and India, for example, took the path of "non-alignment."[7]

In 1946 and 1947, Stalin, Churchill, and Truman gave important speeches that delineated the lines. Stalin, in Moscow on February 9, 1946, reiterated communist ideology: that capitalism distributed wealth unevenly; that the capitalist countries were destined to fight a war among themselves; and that world peace would come with the triumph of communism. Churchill gave his speech the same year in Fulton, Missouri, on March 5, and famously declared that "an iron curtain has descended across the Continent" and that the Western democracies must stand united against Soviet expansion. A year later, on March 12, 1947, Truman asked Congress for aid to Greece and Turkey to help those nations combat the spread of communism, thereby creating the Truman Doctrine of opposing Soviet expansion.[8]

Truman earlier had offered the Soviets carrots as well as sticks. On June 14, 1946, the United States had proposed to the United Nations the creation of an International Atomic Energy Authority (the Baruch Plan) to control the bomb and other nuclear activities potentially lethal to human survival. Stalin vetoed the idea. And then, in June 1947, Secretary of State George C. Marshall announced the European Recovery Program (Marshall Plan) for the reconstruction of the continent. Eastern Europe was invited to participate, but Stalin closed that door emphatically when the Czechs expressed interest. Stalin likewise had earlier refused to join the International Monetary Fund and the World Bank, which were created to strengthen capitalism. He had accepted membership in the United Nations primarily because the Soviet Union would have a veto in the Security Council, which he employed against the Baruch Plan.[9]

The United States and Western Europe implemented the Marshall Plan and linked it to the democratization of West Germany in the hope of eliminating any possibility of a return to dictatorship there. Likewise, America imposed its will on Japan, creating a democracy there under the terms of the occupation and the leadership of General Douglas MacArthur. In both cases, the United States gave the defeated countries massive aid in reconstruction to ensure economic growth, employment, and future prosperity, as well as to preclude the possibility that communism could take root. The Soviets challenged the West with the blockade of West Berlin beginning on April 1, 1948, but did not impede airlifts to the city; the blockade ended the next year, on May 12. Residents of East Germany left for the West by the thousands, an exodus that continued and increased throughout the next dozen years.[10]

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[7] Gaddis, *Cold War*, 20–22, 37, 124–128.
[8] Gaddis, *Cold War*, 94–95.
[9] Gaddis, *Cold War*, 30–32, 54–56; Loeber, *Building the Bombs*, 81; Holloway, "Nuclear weapons," in Leffler and Westad, *Cambridge History*, 1:378.
[10] Gaddis, *Cold War*, 33–34, 101–102, 113.

During the years following the end of World War II, Truman and his advisors groped their way toward a policy regarding the Soviet Union. It became known as "containment," a term that diplomat George Kennan first expressed in his famous "long telegram" from the United States embassy in Moscow in February 1946. In its simplest form, containment meant confining Soviet expansion to Eastern Europe and encouraging other nations to support the strategy. By the time Truman left office in 1953, however, he had moved beyond mere containment to a policy of actively defeating Soviet expansion, using diplomacy, military and economic assistance, and the threat of the bomb to reach that objective. In his farewell address, Truman said, "I suppose that history will remember my term in office as the years when the 'cold war' began to overshadow our lives. . . . But . . . it will also say that in those 8 years we have set the course that we can win it."[11]

The Cold War did indeed cast a shadow over the lives of Americans and manifested its influence in several ways. The rise of virulent anticommunism, the occasional capture of real communist spies such as Julius and Ethel Rosenberg, and the fear that communists would infiltrate government and the media culminated in the witch-hunts of the House Un-American Activities Committee (HUAC) and United States Senator Joseph McCarthy. "McCarthyism," however, became institutionalized to some extent, beyond the antics of McCarthy himself, for example in the Federal Bureau of Investigation under Director J. Edgar Hoover, who was obsessed with ferreting out communists both real and imagined. The hunt for Soviet agents became a theme in popular entertainment, as did the effects—also real as well as imagined—of exposure to atomic radiation, which generated motion pictures about giant irradiated monsters rampaging about the planet. Fear of the bomb, as with fear of communist spies, was part of the background noise of life in the Cold War for most Americans, however. Few families constructed private bomb shelters, for example, and aside from occasional "duck and cover" drills, the threat of atomic war only came into focus periodically when crises erupted.[12]

With regard to nuclear weapons, both Truman and his successor, President Dwight D. Eisenhower, confirmed the policy of presidential control. Truman, having used the bomb twice to end the war in the Pacific and to intimidate the Soviets, refused to define the conditions under which it might be used again, frustrating his policy-makers. Eisenhower at first encouraged the development of tactical (battlefield) nuclear weapons but then slowly backed away, adopting the view that once employed, such weapons would inevitably lead to escalation and worldwide devastation. Tactical nuclear weapons, such as nuclear artillery shells, were nonetheless deployed in Europe beginning in 1953.[13]

The fear of the consequences of using nuclear weapons (a fear that Stalin shared but kept to himself) of course did not impede the race on both sides to develop and improve not only more powerful atomic bombs but also better defense and delivery systems, including

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[11] Leffler, "American grand strategy," in Leffler and Westad, *Cambridge History*, 1:76–89.
[12] Ibid., 1:420–441.
[13] Gaddis, *Cold War*, 54–56, 66–68; Loeber, *Building the Bombs*, 90–92; Holloway, "Nuclear weapons," in Leffler and Westad, *Cambridge History*, 1:376.

aircraft and missiles. The production of nuclear and nonnuclear bomb components was spread over more than a dozen facilities in the late 1940s and early 1950s, including Los Alamos, Oak Ridge, Sandia, Hanford, Rocky Flats, and several others.[14]

Research on more-powerful bombs continued, especially on the so-called hydrogen or thermonuclear bomb. The atomic bomb dropped on Hiroshima, Little Boy, was a relatively simple enriched-uranium bomb. The Nagasaki bomb, Fat Man, was a very complicated plutonium weapon. Both bombs were exploded through a fission chain reaction. The potentially far more powerful hydrogen bomb depended on fusion, which is the joining of two light nuclei to form a single, heavier nucleus—a process that thereby releases an enormous amount of energy in its explosion. On May 9, 1951, the United States tested the world's first thermonuclear bomb in the Marshall Islands. A second thermonuclear bomb was tested there on October 31, 1952. Because of the logistical complexity of conducting tests in the Pacific, however, most nuclear weapons were tested at the Nevada Test Site; the first such test occurred there on January 27, 1951. Also, because of the potential risks to civilians and cities should an aircraft with fully assembled bombs crash in the United States, top-secret teams of "weaponeers" were trained at Sandia Base (Kirtland Air Force Base), outside Albuquerque, New Mexico, to fly with the bombs and complete their assembly en route to the target.[15]

At the end of World War II, both the West and the Soviets depended on aircraft for accurate bombing, because rocket development was in its infancy. America's B-29 bomber was the most advanced long-range model of the time. The Soviets manufactured a near-replica, the Tu-4. As with the bombs themselves, research and development continued on the construction and testing of ever-more powerful, longer-range bombers. More important, the research and development of long-range, accurate missiles began, under the leadership of both American scientists and engineers and former German adversaries such as Werner von Braun. In anticipation of the threat from Soviet long-range bombers, American scientists also began to develop advanced radar technologies to produce an early warning system. Significantly, the United States looked for ways to use nuclear technology in ways other than for weapons; on June 14, 1952, Truman laid the keel of USS *Nautilus*, the first atomic-powered submarine.[16]

In the immediate postwar years, the United States reorganized its armed services and the command structure to coordinate the national defense and the control and deployment of the new weapons system. On March 21, 1946, the Strategic Air Command, the Tactical Air Command, and the Air Defense Command were created within the Army Air Forces.

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[14] Loeber, *Building the Bombs*, 81–89, 98–101. For a selected inventory of manufacturing facilities, see Appendix D, pages 00–00.

[15] Loeber, *Building the Bombs*, 113–116; personal communications, Toni S. Turner to author concerning "weaponeers" program, in e-mails (Aug. 10, 22, 23, 24, Nov. 11, 2010, and Jan. 24, 2011) and telephone conversation between author and the late Marion R. Turner, Jr., Lt. Col. USAF (Ret.), on the same subject, Aug. 23, 2010.

[16] BDM Corporation, *History of Strategic Air and Ballistic Missile Defense, 1945–1972*, 2 vols. (Washington, DC: Center of Military History, United States Army, 2005), 1:9–10; Loeber, *Building the Bombs*, 106–109. For a selected inventory of strategic and tactical aircraft sites, see Appendix D, pages 00–00.

The Atomic Energy Act, which Truman signed on August 1, 1946, created the Atomic Energy Commission (AEC) and transferred the responsibility for nuclear weapons design and development from military to civilian control. On July 26, 1947, Truman signed the National Security Act, which created the Department of Defense and the new and separate departments of the Navy, the Army, and the Air Force, as well as the National Security Council (NSC), the Central Intelligence Agency (CIA), and the Joint Chiefs of Staff. Numerous reorganizations followed over the next dozen years as interservice rivalries erupted in competition for the advance weapons systems.[17]

On June 25, 1950, America's new military organization received its first shooting-war test when Kim Il-sung's North Korean troops crossed the 38th parallel in a surprise invasion of South Korea. The anticommunist Republic of South Korea had been founded on August 15, 1948, and the Soviets created the Korean People's Democratic Republic in North Korea a few weeks later, on September 9. Each side sought reunification at the expense of the other, and South Korean Syngman Rhee had threatened to march north. The United States, like the Soviet Union, had withdrawn its postwar occupation troops, but China's Chairman Mao was encouraging Kim to act. When he did, Truman led a United Nations coalition in defense of South Korea, under command of General Douglas MacArthur. The general executed a brilliant flank attack, landing forces at Inchon to cut off the North Korean army, and then he marched north. As he approached the Yalu River—the border with China—the Chinese army counterattacked and soon had his army in retreat. When the Chinese attack first occurred, Truman seemed to suggest in a press conference that nuclear weapons might be used in defense, but he quickly retracted his words. The war settled into the conventional mode (attack and counterattack with conventional weapons), and dragged on for two more years. It was the first proxy war, in which a Soviet satellite lured a Western nation into armed conflict. It would not be the last.[18]

[17] Loeber, *Building the Bombs*, 79–80, 102–103; BDM, *Air and Ballistic Missile Defense*, 12, 47, 125–126. For a selected inventory of command and control sites, see Appendix D, pages 00–00.
[18] Gaddis, *Cold War*, 40–46.

Part Two: From Deep Freeze to Détente

On January 20, 1953, Dwight D. Eisenhower was inaugurated President of the United States. Less than two months later, on March 5, Josef Stalin died in Moscow. His successor, Lavrentii Beria, was the notoriously murderous chief of Stalin's secret police. That the accession of such a man followed the death of an absolute dictator was anything but reassuring to the West, particularly in the midst of the Korean War. As if to underscore the elevated risk, on March 15 Soviet MIG-15 fighter jets fired on what the Americans called a "weather plane" (in reality a B-50 Superfortress reconnaissance plane) off the Kamchatka Peninsula in far eastern Russia. Tensions eased slightly, however, when on July 27 an armistice was signed that ended the fighting in Korea and created a demilitarized zone (DMZ) at the 38th parallel, thereby largely restoring the balance that existed before the war.[19]

Almost immediately, however, the nuclear balance was upset (as far as America was concerned) when the Soviet Union exploded its first thermonuclear bomb a few weeks after the Korean armistice, on August 12, 1953. Both sides had been apprehensive about detonating hydrogen bombs because of concern among some scientists that the explosive power was uncontrollable. Their fears were confirmed on March 1, 1954, when a U.S. Navy test of a deliverable thermonuclear bomb was held at Bikini Atoll in the Marshall Islands. An explosive yield of five megatons was predicted; the actual yield was almost fifteen megatons, a thousand times as large as the bomb that destroyed Hiroshima. The blast spread fallout for hundreds of miles downwind—enough to kill a Japanese fisherman—and radiation detectors were set off around the world. If one hydrogen bomb could produce such a result, what would a thousand do? Winston Churchill went public with his fear that worldwide annihilation was a distinct possibility; Eisenhower echoed it; and the Soviet leaders voiced the same fear, but only among themselves.[20]

The end of the Korean War afforded only a brief release from international tensions. During the 1950s, nationalist and "liberation" movements arose in many countries, especially those in the Middle East, Africa, and Asia that formerly had either been colonies of European countries or had been dominated by them. In some cases, communists led nationalist insurgencies, as in Vietnam, while in other instances nations such as Egypt chose to align themselves with the Soviet Union without installing a communist government. The Eisenhower administration suspected that most if not all nationalist movements were communist-inspired. The administration did not develop an effective way of harnessing nationalist energy to the Western cause and instead relied on propaganda campaigns, counterinsurgency efforts, and propping up pro-Western regimes to counter Soviet military and economic assistance to Third World nations.[21]

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[19] Gaddis, *Cold War*, 59–60, 104–105.
[20] Gaddis, *Cold War*, 62, 64; Loeber, *Building the Bombs*, 113–116; Holloway, "Nuclear weapons," in Leffler and Westad, *Cambridge History*, 1:383.
[21] Robert J. McMahon, "US national security policy from Eisenhower to Kennedy," in Leffler and Westad, *Cambridge History*, 1:300–302.

Proxy wars and wars of liberation were alternatives to all-out war between the Soviets and the West. Eisenhower's advisors, while agreeing that an all-out nuclear war would doom mankind, tried to convince him to plan for limited nuclear warfare, an approach that the president at first seemed to embrace. Soon, however, he changed his mind and insisted that the nation plan only for an unlimited nuclear war. He shared Truman's assessment that the restricted use of tactical nuclear weapons on a conventional battlefield would quickly escalate. And if the Soviets launched a surprise attack against the United States, Eisenhower reasoned, they would likely use every weapon at their disposal. America would fight back in similar fashion ("massive retaliation"), and the end of civilization would be the result. If that was true, then the only hope of avoiding it was to prepare for unlimited warfare, which would inflict incomprehensible damage on each side, regardless of who started it. In such a war there could be no victor: stalemate. The new strategy was nuclear deterrence, and the Cold War evolved into a war of nerves.[22]

The research and development of bombers and missile systems to deliver guaranteed obliteration, as well as aircraft and missiles to defend against it, continued apace in both the Soviet Union and the United States. Because the primary and most sophisticated bomb-delivery system in existence at the end of World War II was the long-range bomber, each side sought to construct bigger, faster aircraft capable of delivering more and bigger bombs. In America, the most advanced bomber at the end of the war was the B-29. By the mid-1950s, following a succession of more advanced bombers, it had been replaced by the B-52. The Soviets had their own advanced bombers, the Bear and the Bison, and when American planners overestimated their numbers, the fear of a "bomber gap" grew in the United States. Besides strategic bombers, both sides developed and manufactured ever-more-sophisticated jet fighters and interceptors. Beginning in 1961, the Strategic Air Command operated Looking Glass, an airborne command center from which the president could conduct nuclear war and direct the firing of intercontinental ballistic missiles if the ground-control centers were knocked out.[23]

In the United States, research on the first system of intercontinental ballistic missiles (ICBMs) dated to 1945. Based on the German V-2 rocket, the first American version was called Atlas, a liquid-fuel rocket with a 6,000-mile range that could carry an 8,000-pound nuclear warhead to within 1,000 yards of the target. A series of Atlas missiles, A through F, were tested and deployed between 1954 and 1962. The missiles were at first installed above ground on launch pads, but later were maintained and fueled in belowground silos and then lifted to the surface for launch. They were installed at Air Force bases, including Vandenburg (California), Forbes and Schilling (Kansas), Offutt and Lincoln (Nebraska), Walker (New Mexico), Plattsburg (New York), Altus (Oklahoma), Dyess (Texas), Fairchild (Washington State), and Warren (Wyoming). The Atlas system was phased out by April 1965.[24]

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[22] Gaddis, *Cold War*, 63–65; Holloway, "Nuclear Weapons," in Leffler and Westad, *Cambridge History*, 1:384–386, 392.
[23] BDM, *Air and Ballistic Missile Defense*, 1:28, 2:32.
[24] Mark Berhow, *U.S. Strategic and Defensive Missile Systems, 1950–2004* (Oxford, UK: Osprey Publishing, 2005), 6, 62. For a selected inventory of Atlas sites, see Appendix D, pages 00–00.

The Titan system replaced the Atlas. Development began in 1954–1955, even as the Atlas rockets were being tested and deployed. Titan's fueling system was simpler and safer than Atlas's, and the range of later Titan models improved to 9,000 miles. The rockets were stored and maintained in "super-hardened" silos buried deep underground, and the operational, guidance, and maintenance facilities were likewise below ground. There were differences between the arrangement of the facilities for the Titan I and Titan II systems, however. In the case of Titan I, the missiles and the facilities were close together; for Titan II, the missiles were spaced at least seven miles apart. The Titan Is, with a range of 6,300 miles, were installed at Air Force bases in California (Beale), Colorado (Lowry), Idaho (Mountain Home), South Dakota (Ellsworth), and Washington State (Larson). The Titan IIs, with a 9,000-mile range, were installed at bases in Arizona (Davis-Monthan), Arkansas (Little Rock), and Kansas (McConnell). The Titan I system was phased out in 1965; the Titan II system was retired between 1984 and 1987.[25]

Minuteman missiles replaced the Titans. Although the Air Force began research as early as 1954 on solid fuels as an alternative to the more-volatile and -complicated liquid-fuel systems of Atlas and Titan, at first such fuels were not powerful enough to deliver the heavy payloads to their targets. Later in the decade, as more-powerful solid fuels were designed and the payloads became lighter, what was called the Minuteman rocket was tested successfully. In October 1962, the first Minuteman missiles were activated. They were deployed at Air Force bases, including Whiteman (Missouri), Malmstrom (Montana), Minot and Grand Forks (North Dakota), Ellsworth (South Dakota), and Warren (Wyoming). The facilities, including control and maintenance centers and silos, sprawled over thousands of acres. During the 1960s, Minuteman II and Minuteman III joined the system; production ended in 1978, but Minuteman missiles remained deployed until the end of the Cold War.[26]

The first American antiaircraft system, operational by 1954 and fully deployed under U.S. Army control by 1956, was called Nike Ajax. Each radar-directed, liquid-fuel rocket carried a conventional high-explosive warhead to defend against single Soviet bombers. It was tested at White Sands Proving Ground, New Mexico, and then the system was installed around major American cities under U.S. Army control; the first battery was installed at Fort Meade, Maryland, near Washington, D.C., in December 1953. Nikes also protected Baltimore, Boston, Chicago, Cleveland, Detroit, Hartford, Milwaukee, New York, Norfolk, Philadelphia, San Francisco, and Seattle, as well as other cities. Each installation consisted of three areas: integrated fire control, launcher and magazine, and administration. For missile control and tracking, the control area was typically more than a thousand yards from the launch site. Because most installations were near cities and not on military posts, typically one or more tracts of land had to be acquired.

Even before the Nike Ajax was deployed, research began in 1953 on the next generation of Nike missile, dubbed Hercules. Larger and powered with solid fuel, the Nike Hercules could carry a nuclear device capable of destroying entire formations of Soviet bombers,

[25] Berhow, *Missile Systems*, 6, 62. For a selected inventory of Titan sites, see Appendix D, pages 00–00.
[26] Berhow, *Missile Systems*, 6, 62.

not just a single aircraft. First tested at White Sands in 1955, the early Hercules had a range of 50 miles and an altitude capability of 70,000 feet; alterations eventually increased the range to 90 miles and the altitude to 100,000 feet. The conversion of selected sites from Ajax to Hercules began on June 30, 1958, at Site C-03 in the Chicago Defense Area, and was completed in 1962. Entirely new Hercules sites were added to protect Anchorage, Cincinnati, Dallas, Fairbanks, Kansas City, Little Rock, Minneapolis–St. Paul, Oahu, St. Louis, and Thule Air Base in Greenland, among other locations including foreign countries. As the anticipated threat changed from Soviet bombers to ICBMs, however, the missiles became obsolete. By the end of the 1960s, the Hercules sites had almost all been deactivated. By October 1, 1974, all of them had been deactivated.[27]

In the 1950s, yet another interceptor missile was developed, the BOMARC (named for the two research participants, Boeing and the Michigan Aeronautical Research Center), under control of the U.S. Air Force. It could carry either conventional or nuclear warheads, rise quickly to 60,000 feet, and then cruise like a jet aircraft for 230 nautical miles. The A model was liquid-fueled; the B model, developed in 1959–1960, was solid-fueled and had a range of 440 nautical miles. The BOMARC A was deployed in 1959 at McGuire (New Jersey) and Suffolk County (New York) Air Force bases, and in 1960 at Otis (Massachusetts), Dow (Maine), and Langley (Virginia) Air Force bases. The BOMARC B was deployed beginning in 1960 at McGuire, Otis, Langley, Kinross/Kincheloe (Michigan), Duluth (Minnesota), and Niagara Falls (New York) bases, as well as at North Bay (Ontario) and La Macaza (Quebec). Plans to install them at other sites were cancelled for the same reason as the deactivation of the Hercules sites: obsolescence in the face of Soviet missiles as the primary nuclear-weapon delivery system. The Air Force began closing the BOMARC sites in 1964; the last one, McGuire, was closed in 1972.[28]

Antiballistic missile (ABM) research began in 1945, as the Allies sought ways to knock down German V-2 rockets, and then dwindled in importance in America as Soviet bombers posed the primary threat early in the 1950s. When the Soviets improved the range and accuracy of their ICBMs by mid-decade, however, ABM research resumed in earnest. The result was the Nike Zeus, which carried a five-megaton nuclear warhead, had a range of more than 250 miles, and could ascend to an altitude of 200 miles. It acquired and tracked its targets using an array of four radars. The U.S. Army first test-fired the Nike Zeus on December 14, 1961, at Kwajalein Atoll in the southwestern Pacific Ocean. Concerns over the radar's ability to distinguish between incoming real and decoy warheads, however, led to the cancellation of the program and the commencement in 1964 of research into a replacement. Instead of one missile system, the new system had two: a primary ABM named Spartan and a backup named Sprint, which was intended to intercept any ICBMs that evaded the Spartan defense. In 1968, President Lyndon B. Johnson announced plans to deploy the new missiles as the Sentinel ABM program. The Nixon administration put the plan on hold, then reconfigured it in 1969 as the Safeguard ABM system, and assigned it the mission of protecting American

[27] Berhow, *Missile Systems*, 6, 60. For a selected inventory of Nike sites, see Appendix D, pages 00–00.
[28] Berhow, *Missile Systems*, 5, 62.

ICBM fields. Construction began at two Safeguard sites, Malmstrom (Montana) and Grand Forks (North Dakota) Air Force bases, and other sites were authorized, but the Antiballistic Missile Treaty signed in 1972 halted construction. The treaty allowed each side two ABM sites, one to protect an ICBM field and the other at the national capital, so the Grand Forks site was completed while the Washington, D.C., site was never begun. On October 1, 1975, the Grand Forks site (renamed in 1974 the Stanley R. Mickelson Safeguard Complex) was declared operational. The next day, however, the U.S. Congress voted to terminate it; the complex was mothballed in February 1976.[29]

Whether nuclear attack from the Soviet Union came in the form of missiles or bombers or both, the United States considered the construction of an effective early-warning-radar system as necessary to provide a chance of defending against such an attack or reducing its destructive effect. Although numerous radar systems were employed during the Cold War years, the earliest and most ambitious was the DEW (Distant Early Warning) Line, a string of stations stretching across Alaska, Canada, and Greenland several hundred miles above the Arctic Circle. Begun in 1957 and essentially completed in 1960, the DEW Line was supplemented by other, similar lines farther south. To improve communication among DEW stations and other facilities, the Air Force constructed the White Alice telecommunications system, which employed new technology including microwave radio links, at about the same time. Within two decades, satellite communications rendered the White Alice system obsolete and it was dismantled.[30]

Each side spied on the other, determined to assess its adversary's capabilities and plan for unexpected threats. Because it was difficult for the United States to penetrate the Iron Curtain, a special aircraft was developed to fly over it: the U-2. Designed to fly at 70,000 feet, well above the limits of Soviet SAMs (surface-to-air missiles), the U-2 carried advanced photographic equipment. Lockheed manufactured it for the Central Intelligence Agency, and the first flight took place at Groom Lake (Area 51) on August 1, 1955. The first flight over the Soviet Union occurred on July 4, 1956, and many others followed over the next four years. Among other discoveries made was the fact that the "bomber gap" did not exist, and neither did the "missile gap." The Soviets had far fewer of each delivery vehicle than had been thought. On May 1, 1960, however, the Soviets avenged the discovery of their secrets by shooting down a U-2 with an advanced SAM, scavenging the wreckage, and capturing the pilot, Francis Gary Powers. Khrushchev also caught the Eisenhower administration in a lie when the State Department first claimed that the aircraft was a weather flight gone astray: he gleefully displayed the wreckage, the camera, and the photographs that had been taken. A furious Eisenhower was forced to acknowledge the falsehood. Khrushchev made the most of his propaganda coup, using the episode to wreck the previously scheduled summit meeting with Eisenhower in Paris two weeks later.[31]

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[29] Berhow, *Missile Systems*, 6, 62; BDM, *Air and Ballistic Missile Defense*, 2:179–196.
[30] BDM, *Air and Ballistic Missile Defense*, 1:129–132, 2:138–140, 150–151. For a selected inventory of defensive radar networks such as DEW, as well as White Alice sites, see Appendix D, pages 00–00 and 00–00.
[31] Gaddis, *Cold War*, 73–74, 167–168.

Throughout the decade preceding the U-2 Incident, the West and the Soviets had taken steps to strengthen alliances with other nations around the world to foil what they each saw as the military ambitions of the other side. On April 4, 1949, the United States joined with Belgium, Canada, Denmark, France, Great Britain, Iceland, Italy, Luxembourg, the Netherlands, Norway, and Portugal to form the North Atlantic Treaty Organization (NATO) for mutual defense. Greece, Spain, Turkey, and West Germany subsequently joined as well. China and the Soviet Union signed a bilateral defense commitment, the Sino-Soviet Pact, on February 15, 1950. The United States signed a mutual defense assistance agreement with Vietnam on December 23, 1950. The next year, on September 8, the United States and Japan signed a treaty allowing an American military presence in Japan to defend the nation. The United States also negotiated a mutual security agreement with the Philippines, Australia, and New Zealand called the ANZUS Pact. On September 7, 1954, eight nations formed the Southeast Asia Treaty Organization (SEATO)—the United States, Australia, Britain, France, Pakistan, the Philippines, Thailand, New Zealand—to oppose Soviet military aggression. In response, the Soviet Union formed the Warsaw Pact alliance on May 14, 1955, to provide for the mutual defense of Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Rumania, and the Soviet Union. All of these pacts and alliances were essentially for mutual defense in case of conventional attacks and warfare, since total nuclear war would obliterate most of the world regardless of alliances. They also failed to deter either side from taking actions short of general war, particularly in Third World nations.[32]

In addition to weapons, threats, and alliances, both the United States and the Soviet Union utilized propaganda in various forms to present their messages to the world (especially the Third World) as well as to their own citizens. Through the United States Information Agency, Radio Free Europe, and Voice of America, the Western message was broadcast to Soviet radios despite attempts to jam the transmissions, and later, as the number of televisions in the Soviet Union increased, Western programs were beamed there. The cultural exchanges that Khrushchev encouraged late in the 1950s worked both ways. The Soviet message got out (but was taken with a grain of salt in the West), while Soviet citizens were stunned to see evidence of the higher standards of living, abundant consumer goods, and so on in the West, in contrast with what their leaders had been telling them. Motion pictures and novels not only featured the other side's spies as the enemy, but also played to fears common to each side about the possibility of catastrophic nuclear war.[33]

By the mid-1950s, tentative and ineffective steps had been taken to reduce the nuclear threat despite the saber-rattling on both sides. At the first summit conference between Eisenhower and Khrushchev in Geneva, Switzerland, on July 18, 1955, Eisenhower proposed the mutual aerial reconnaissance of the United States and the Soviet Union ("open skies"), so each country could keep an eye on the other. Khrushchev rejected the idea, unaware that the U-2 flights would soon begin and provide the United States with

[32] Gaddis, *Cold War*, 34–35, 108–109; McMahon, "US national security policy," in Leffler and Westad, *Cambridge History*, 1:299–300.
[33] Nicholas J. Cull, "Reading, viewing, and tuning in to the Cold War," in Leffler and Westad, *Cambridge History*, 2:438–455.

the truth about Soviet bombers and missiles anyway. And then, on October 4, 1957, the Soviet Union shocked the world, in addition to shaking American confidence that the U-2s were providing all necessary information about Soviet missiles, by launching *Sputnik*, the first manmade satellite to orbit the Earth. A month later, on November 3, the Soviets launched *Sputnik 2*, which carried a living creature (a dog), into orbit. The fact that the United States responded quickly, launching *Explorer I* into orbit on January 31, 1958, did little to deflate renewed fears of a "missile gap" with the Soviet Union. The Soviets had changed the strategic equation with *Sputnik*, opening the door on spying by satellite and, theoretically, on launching attacks by satellite. On September 13, 1959, the Soviets again demonstrated their dominance in the "space race" by crashing a spacecraft on the Moon. In 1960, the United States launched the military reconnaissance satellite *Midas II* on May 24, and then on July 20 fired the first ballistic missile from a submerged submarine, off Cape Canaveral, Florida. Nuclear tensions did not appear to be declining, and to many Americans it appeared that the Soviets had achieved technological superiority over the United States.[34]

Appearances—over the long haul if not in the short term—were deceiving, however. It was true that the Soviets, by making an almost superhuman technological effort in one field at the expense of other undertakings, could achieve remarkable success. But it could not be sustained. Although both the Soviets and the Americans devoted considerable resources to weapons and rocket development, the Soviets compartmentalized their efforts, segregating scientists, declaring certain lines of inquiry off-limits, and allowing for no cross-pollination of ideas and research. In the United States, however, research scientists were not only located at government facilities but also in public universities and corporations. The constraints of national security and necessary secrecy aside, there was no cover on the pot. Private-sector inventions were adapted for military use and vice versa. Transistors and computer chips helped achieve the miniaturization necessary to pack multiple functions in a single satellite, for example. Great advances in personal computing later in the Cold War were developed by youthful American hobbyists working in their garages and clubs, which would have been unthinkable in the Soviet Union. The apparent Soviet supremacy in technology was a fleeting illusion, and that particular race was over almost before anyone in the United States realized it.[35]

On November 8, 1960, John F. Kennedy was elected President of the United States. Ominously, on December 20, Ho Chi Minh, the leader of the Republic of Vietnam (North Vietnam), organized the National Liberation Front of South Vietnam (NLF). On May 11, 1961, Kennedy authorized American advisors to aid the South Vietnamese government in its fight against the NLF. The new president had many other matters to concern him in addition to a small war half a world away. On April 12, 1961, in one of the last Soviet technological "firsts," astronaut Yuri Gagarin became the first man to orbit the Earth; Alan B. Shepard quickly became the first American to make a suborbital flight on May 5, but it was not until February 20, 1962, that John Glenn became the first American to orbit

[34] Gaddis, *Cold War*, 68, 72–73.
[35] David Reynolds, "Science, technology, and the Cold War," in Leffler and Westad, *Cambridge History*, 3:378–399.

the Earth. The president soon declared a national goal of sending a man to the Moon and returning him safely to earth before the end of the decade.[36]

The first non-space-related crisis to hit the new presidency was the Bay of Pigs fiasco in Cuba on April 17, 1961. Authorized by the Eisenhower administration and approved by Kennedy, the invading force of a thousand CIA-trained Cuban refugees were supposed to spark a rebellion to overthrow Fidel Castro, but instead they were killed or captured soon after they landed at the Bay of Pigs. When Khrushchev and Kennedy met at the Vienna Summit Conference on June 3, the Soviet leader used the invasion to bully the younger president, threatening to make the division of Germany permanent (the possibility of reunification had long been a debating point). On August 13, East Germany closed the Brandenburg Gate, the principal crossing point between East and West Berlin, in preparation for constructing the Berlin Wall. Nuclear weapons testing, which both sides had held in abeyance for some time, resumed in September both in the atmosphere and underground.[37]

Then, on October 14, 1962, a U-2 flying over Cuba photographed Soviet bases capable of launching nuclear missiles against U.S. cities, thereby precipitating the Cuban Missile Crisis. For the next two weeks, the United States and the Soviet Union came close to nuclear war as the president demanded that the missiles be removed. When Khrushchev refused (he considered them a counterbalance to American missiles stationed in Turkey close to the Soviet border), Kennedy ordered a "quarantine" of shipping to Cuba and announced that a nuclear attack from the island would be considered a Soviet attack requiring full retaliation against Russia and the Soviet Union. At Malmstrom Air Force Base in Montana, a flight of Minuteman ICBMs were placed on operational alert. A Soviet ship was stopped at sea and turned away, technically an act of war, but the incident passed quietly. Finally, on October 28, Khrushchev agreed to remove all missiles from Cuba and Kennedy agreed to make no more Bay of Pigs–type incursions and (secretly) to remove missiles from Turkey. Most Americans regarded the conclusion of the Cuban Missile Crisis as a victory for the United States, but the Soviets had secured some concessions that were important to them as well. The crisis marked a turning point in the Cold War in that neither superpower ever again took such deliberate risks or came quite so close to disaster.[38]

Kennedy had claimed during the 1960 election campaign that a large "missile gap" existed between the United States and the Soviet Union. In a way he was right, but the gap was on the Soviet side, not the American side as he had asserted. The Soviets knew that the Eisenhower administration knew of their shortfall, as did the Kennedy administration that followed, and both sides knew that there was a good deal of Soviet bluffing during the Cuban Missile Crisis. To avoid being at such a disadvantage ever again, the Soviets launched a massive nuclear weapons buildup and the United States responded in kind. Over the next decade, America fielded more than a thousand ICBMs,

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[36] Gaddis, *Cold War*, 74–75, 129.
[37] Gaddis, *Cold War*, 74, 76, 84, 114–115.
[38] Gaddis, *Cold War*, 75–78; Holloway, "Nuclear weapons," in Leffler and Westad, *Cambridge History*, 1:394–397.

several hundred submarine-launched ballistic missiles (SLBMs), and multiple-warhead missiles (MIRVs). Eventually, by early in the 1970s, the Soviet Union achieved nuclear parity with the United States. That result, which both sides understood, was that neither side could survive nuclear war. Given the vast numbers of both strategic and tactical nuclear weapons, however, it increased the likelihood of accidental or inadvertent disaster. Nevertheless, both sides continued to press on with their war of propaganda and low-grade confrontation, especially in the Third World of unaligned or teetering nations.[39]

The Kennedy administration adopted a different approach to the Third World and Soviet adventurism there than had the Eisenhower administration. Taking a more proactive approach to challenging the lure of Soviet assistance, Kennedy and his advisors developed the Peace Corps, which sent young, idealistic Americans to Third World countries to assist in a variety of ways from teaching to helping plant crops to advising emerging corporations. The goal was to counter Soviet propaganda about "ugly Americans" and it was largely successful. Less successful, however, was another Kennedy program, the Alliance for Progress. Using American funding, it was designed to help Third World nations fight poverty and disease, improve infrastructure, and boost education. Always underfunded, the program fell short of its lofty goals.[40]

Kennedy also modified the previous administration's "massive retaliation" doctrine, with which he disagreed, preferring to institute a range of nonnuclear options dubbed "flexible response." Some European allies worried that the new approach signaled that America was backing away from its mutual defense commitments. Kennedy had to spend time convincing them that such was not the case.[41]

In June 1963, Kennedy visited Berlin and made his "Ich bin ein Berliner" speech to signify American solidarity with the city's residents—and by extension, with the rest of Europe. In the same month, a teletype link between the White House and the Kremlin, the Hot Line, was established to improve communications between the adversaries and lessen the chance of misunderstandings leading to nuclear war. With no one happy about the pollution and other dangers of aboveground nuclear testing, on October 7 Kennedy signed the Limited Test Ban Treaty, in which the United States, the Soviet Union, and Britain agreed to ban tests in the atmosphere, under water, and in outer space. Underground tests were allowed to continue. Then, on November 22, Kennedy was assassinated in Dallas, Texas. When it was discovered that the assassin, Lee Harvey Oswald, had lived in the Soviet Union, both the Russians and the Americans wondered if there was any connection. Much to the Soviets' relief, a check of KGB files revealed that although Oswald had been approached by the spy agency, he was determined to be too unstable to be of use, and no attempt had been made to turn him into an agent.[42]

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[39] William Burr and David Alan Rosenberg, "Nuclear competition in an era of stalemate, 1963–1975," in Leffler and Westad, *Cambridge History*, 2:88–111.
[40] McMahon, "US national security policy," in Leffler and Westad, *Cambridge History*, 1:306–307.
[41] Ibid., 303–305, 308–309.
[42] Gaddis, *Cold War*, 81; Gerald Posner, *Case Closed: Lee Harvey Oswald and the Assassination of JFK* (NY: Random House, 1993), 54–56.

The new president, Lyndon B. Johnson, planned to concentrate on domestic issues, such as civil rights and a "war on poverty," but soon Vietnam dominated foreign affairs. When North Vietnamese vessels allegedly attacked American ships in the Gulf of Tonkin, on August 2, 1964, Johnson ordered retaliation. Five days later, the U.S. Congress approved the Gulf of Tonkin Resolution, which gave the president the power to take "all necessary measures to repel any armed attack against the forces of the United States, and to prevent further aggression." The resolution gave Johnson carte blanche to carry on war with North Vietnam, an opportunity he exploited until the end of his presidency on the grounds that if South Vietnam fell to the communists other countries in Southeast Asia would also tumble (the "domino theory" that Eisenhower first expounded and Kennedy subsequently endorsed).[43]

In the Soviet Union, meanwhile, a silent, bloodless coup took place on October 15, 1964, when Politburo members Leonid Brezhnev and Alexei Kosygin ousted Khrushchev from his leadership position. They cited a list of grievances, including the national humiliation suffered over the Cuban missile disaster and the embarrassment over the Berlin Wall (which was obviously constructed to keep East Berliners in, not to keep West Berliners out), and Khrushchev went quietly. He even professed to be pleased that his removal was accomplished with no loss of life, unlike what would have happened if a similar attempt had been made against Stalin a dozen years earlier. It was an odd sort of change in which to take pride—that the Soviet system and its leaders had become slightly less brutal and murderous—but Khrushchev's successors would soon reverse the trend as the satellite nations began to take the change seriously.[44]

Johnson, meanwhile, became bogged down in Vietnam, in a seemingly endless escalation of troop insertions, bombing campaigns, and inflated enemy "body counts." Determined, as he put it, not to be the first American president to lose a foreign war, Johnson faced growing opposition in the United States. On January 30, 1968, however, despite the bombing and almost half a million American troops in Vietnam supporting or conducting "search and destroy" missions, North Vietnamese and NLF troops launched the Tet Offensive all over South Vietnam. Although the result was a communist defeat, the fact that such an offensive could be launched at all destroyed the administration's credibility.[45]

Adding to the perceived dangers that America faced, China had joined the nuclear club on October 16, 1964, with the explosion of its first atomic bomb. It exploded its first hydrogen bomb on June 17, 1967, not even three years later. Between the two events, in April 1966, the Chinese began their Cultural Revolution, sparking several years of dangerous chaos there. In the spring of 1968, in Czechoslovakia, communist party leader Alexander Dubcek initiated reforms, including greater freedom of expression, to create "socialism with a human face." Once unleashed, however, such reforms led to others, and before long Brezhnev and the other Soviet leaders had had enough. On August 20,

[43] Gaddis, *Cold War*, 168–170, 173.
[44] Gaddis, *Cold War*, 119–120.
[45] Gaddis, *Cold War*, 170.

Soviet tanks and infantry rolled into Czechoslovakia and crushed the Prague Spring, while courageous Czechs confronted the armor and soldiers with verbal abuse and signs proclaiming, among other things, "Hide your mothers and sisters—the Russians are coming!" (alluding to the mass rapes that Russian soldiers perpetrated in Germany at the end of World War II).[46]

For the United States, 1968 was a year of notable deaths. In Vietnam on March 16, the My Lai massacre occurred when an American platoon gunned down unarmed villagers including old men, women, and children, creating a national scandal. On April 4, the renowned civil rights leader the Rev. Dr. Martin Luther King Jr. was assassinated in Memphis, Tennessee. Two months later, on June 5, Senator Robert F. Kennedy was assassinated in Los Angeles, California, while campaigning for the Democratic nomination to seek the presidency. Johnson, on March 31, had shocked the nation by announcing that he would not seek reelection. In Paris on May 10, peace talks began between the United States and North Vietnam but made little progress. Later in the year, on October 31, Johnson stopped the bombing of North Vietnam and invited South Vietnam to the peace talks, which continued to drag on.[47]

On November 5, 1968, Richard M. Nixon was elected President of the United States. A brilliant, divisive, and ultimately inscrutable politician, Nixon had first risen to prominence late in the 1940s as a staunch anticommunist. He had campaigned for the presidency on a platform of "peace with honor" in Vietnam, assuring the American people that he had a "secret plan" to bring the war to an end. After taking office, however, and having inherited more than half a million troops in Vietnam, in March 1969 he ordered the bombing of Cambodia to foil North Vietnamese attacks. And then, on June 8, he ordered the first American troops out of Vietnam under a "Vietnamization" plan. Over the next three years, Nixon mixed bombing halts and starts and troop reductions as well as the invasion of Cambodia with lengthy, on-and-off negotiations at the Paris peace talks.[48]

In the meantime, American antiwar fervor reached its height in 1970, especially on college campuses, but the killings of students at Kent State University and Jackson State College during protests sobered the nation. The protest movement was part of a larger Cold War phenomenon called the counterculture. Although antiwar protests were largely identified with college students, the counterculture permeated American society and reflected dissatisfaction with aspects of American life ranging from expectations of domesticity to racial segregation to what many saw as a needless war. Arising in quiet opposition to the social and political conformity of the 1950s, the counterculture manifested itself most notably in the women's movement, the Civil Rights movement, and in the youth-driven antiwar movement (with which the counterculture was most closely identified). Similar countercultural movements arose in both other Western countries and in the Soviet Union. Invariably, wherever there was a counterculture there

[46] Gaddis, *Cold War*, 147–148, 185, 188.
[47] Gaddis, *Cold War*, 169–171.
[48] Gaddis, *Cold War*, 172.

was also a backlash, sometimes violent. Having gained momentum over more than a decade, the counterculture did not expire when America's role in Vietnam ended.[49]

On January 27, 1973, the Paris Accords were signed, establishing a ceasefire and a political settlement to American involvement in the war. The last American combat forces left the country on March 29, 1973, bequeathing the fight to the Vietnamese. Two years later, communist forces occupied Saigon on April 30, 1975, as the Americans hastily evacuated the embassy and left thousands of refugees to the mercy of the communists. The final scenes, with helicopters evacuating embassy staff members and a handful of loyal Vietnamese, epitomized the chaos of war. American television showed the desperate Vietnamese pressing against the embassy gates, being punched as they tried to climb aboard the last helicopter, and watching sadly as it flew away. Ho Chi Minh did not live to see the end of the war, having died on September 3, 1969.[50]

Ironically, it was Nixon, the staunch anticommunist, who succeeded in toning down for a time the Cold War conflict between the United States and the Soviets. On November 17, 1969, the two sides began the Strategic Arms Limitation Talks (SALT). A Non-Proliferation of Nuclear Weapons treaty went into effect on March 5, 1970; it proscribed the transfer of nuclear weapons to nonnuclear nations and the production of nuclear weapons in those nations. The negotiations and the nonproliferation treaty did not prevent the Minuteman III ICBM system from becoming operational in August, however.[51]

Early in 1972, Nixon stunned his critics when he announced that he would go to China to negotiate directly with Mao Zedong—something only the anticommunist president could have done without earning the enmity of his political party. The visit took place February 17–27, 1972, and Nixon promised to withdraw American forces from Taiwan. On May 26, the United States and the Soviet Union signed the SALT I agreement, which restricted the development of antiballistic missiles and froze the numbers of ICBMs and submarine-launched ballistic missiles (SLBMs) for the next five years.[52]

To many Americans, it seemed counterintuitive to limit the number of ABMs to protect against missile attack. It was, however, a logical extension of the policy of planning for nothing less than total nuclear war (which had evolved into the policy of Mutual Assured Destruction under Secretary of Defense Robert S. McNamara): a nation essentially defenseless against nuclear attack or retaliation would do everything possible to avoid nuclear war. With both the Soviet Union and the United States in the same posture, so the thinking went, the possibility of such a war was near zero.[53]

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[49] Jeremi Suri, "Counter-cultures: the rebellions against the Cold War order, 1965–1975," in Leffler and Westad, *Cambridge History*, 2:460–481.
[50] Gaddis, *Cold War*, 172–173.
[51] Gaddis, *Cold War*, 199–200.
[52] Gaddis, *Cold War*, 149–152, 200.
[53] Gaddis, *Cold War*, 80–81.

On May 29, 1972, Nixon and Brezhnev signed an agreement on the "basic principles of détente," the philosophy put forward to justify the new arrangements. Détente essentially was the acceptance of the political status quo in the world, especially in Eastern Europe, and the commitment on the part of both sides to continue to work together to reduce nuclear tensions. It also recognized reality, in that for all of America's objections to the way in which the Soviets enforced their will in Eastern Europe, the United States had never taken any action to put a stop to it. Some in the United States, however, were not comfortable with silence in the face of Soviet oppression, even at the price of stability. Senator Henry M. Jackson and Congressman Charles Vanik, for example, secured passage of an amendment to a trade bill worked out with the Soviets, denying them most-favored-nation status because of their limitations on emigration. Angered, the Soviets cancelled the deal. Although détente would be the dominant approach to American-Soviet relations for most of the rest of the decade, the road would be full of such bumps.[54]

On November 7, 1972, Nixon was reelected president. Over the next year and a half, a minor burglary at the Democratic National Committee headquarters in the Watergate apartment complex in Washington would grow into perhaps the worst constitutional crisis the nation had faced since the Civil War. On March 1, 1974, a Washington grand jury returned an indictment against seven former presidential aides and named Nixon an "unindicted co-conspirator." The House Judiciary Committee opened presidential impeachment hearings on May 9; the existence of secret Oval Office tape recordings was revealed, triggering a battle over access to them; the president defended himself on national television, famously declaring, "I am not a crook"; and on July 27 the House Judiciary Committee voted in favor of impeachment. To avoid the humiliation of a trial and likely conviction and removal from office, Nixon endured the humiliation of being the only president in American history to resign. On August 9, 1974, he left the White House and Gerald R. Ford took the oath of office as president.[55]

The Soviets were both puzzled and stunned, like many other foreigners, by this turn of events. What perhaps amazed them even more was that the nation had not collapsed into chaos during the crisis. Ford put the country's sigh of relief into words when he declared, "Our long national nightmare is over." The Cold War, however, continued.

[54] Gaddis, *Cold War*, 180–184.
[55] Gaddis, *Cold War*, 155–158.

Part Three: The End of the Wall

The policy of détente continued from 1972 until the end of the Ford administration in 1976. On the surface, détente smoothed the way for cooperation in such matters as the space exploration, exemplified on July 17, 1975, when American and Soviet astronauts in *Apollo* and *Soyuz* spacecraft linked up in orbit. Negotiations also continued between the Soviets and the United States not merely to limit the spread and deployment of nuclear weapons but also to begin reducing their numbers in a very real way. The status quo remained seemingly strong, with the Soviet leaders dealing with their internal issues in their own way despite periodic protests from human-rights supporters on the outside. Inside the Soviet Union, however, the structure supporting the facade slowly began to crumble.

Communism had long claimed historical infallibility and the role of supreme supporter of workers' rights. The actions of the Soviet leaders from the 1950s and thereafter, however, began to undermine those claims. Perhaps this process began on February 25, 1956, when Nikita Khrushchev denounced Stalin and his crimes—the enslavement and murder of millions—in detail to the 20th Congress of the Soviet Communist Party. Khrushchev took this action, which shocked the delegates to their cores, to justify party reforms, but his words created problems for himself and for the international communist movement. How could a party that claimed infallibility be subject to reform? The contradictions between dogma and reality became ever more obvious over the years: the crushing of the Hungarian uprising in 1956, the suppression of the Prague Spring in 1968, the notorious Gulag that Aleksandr Solzhenitsyn exposed to the world in the 1970s, the blatant lies of Soviet leaders during conflicts with the West, and the rising chorus of dissent within the Soviet Union all contradicted, to say the least, the official image of the workers' paradise. The Soviet Union, no less than any other form of government, relied ultimately in the faith of the governed to sustain it. Infallibility is a high standard to live up to; when the failure to attain it becomes obvious even to the most ardent supporters, structural collapse becomes almost inevitable.[56]

The contrasts between Western and Soviet rhetoric and ideals manifested themselves most clearly, perhaps, in the consumer-oriented economies that the centrally controlled Soviet countries lacked. Derided—often with justification—as mere crass materialism, consumerism was the engine that powered the economies of the United States and most other countries outside the Soviet bloc. Consumerism was not just a desire for more things, but for things that freed people from drudgery, that encouraged a more interesting life, that offered more choices, and that promoted leisure activities. While the West could have both guns and butter thanks to its diverse, capitalist economies, the Soviets could only choose one or the other. Soviet consumers, therefore, always got the short end of the budget stick. No amount of propaganda could offset the obviously lower Soviet standard of living, which became all the more obvious when travel and cultural-exchange restrictions were eased. Even in Moscow, the most prosperous city in Russia, residents carried plastic bags at all times, and when they saw a long line outside an official Soviet shop, they only asked what was for sale after they joined the line. Usually it was some

[56] Gaddis, *Cold War*, 84–87, 263–264.

product that had not been available yesterday, and would not be available tomorrow, or even in a few hours. In contrast, Western consumers faced an overabundance of choices and products that even many of them regarded as ridiculous excess. Late in the Cold War, Russian president Boris Yeltsin visited a standard American supermarket. The plenitude of cans and boxes on the shelves so stunned him that he later wrote that he felt "sick with despair for the Soviet people." The Soviets might achieve parity with, or even surpass the United States in numbers of missiles, but they would never be able to meet the demands of their own expanding and complaining consumer society. This was just one of the disparities between Soviet mythology and reality that contributed to growing dissatisfaction with the regime and contributed largely to the eventual collapse of the Soviet Union.[57]

This dissonance and anger developed slowly, but it gained momentum in August 1975 with the signing of the Helsinki Accords. The Soviet Union had, since 1954, sought almost annually some official recognition by the West of the division of Europe, and the resulting Soviet sphere of influence there, that had come into effect at the end of World War II. The West, particularly the United States, routinely rebuffed the Soviet demand but under détente the Western refusal to recognize reality seemed futile. Europe was divided, after all, and seemed likely to remain that way. The Western nations, however, did not make it too easy for Brezhnev to get his document signed; they insisted on adding clauses about the peaceful change of international borders, the joining and leaving of alliances, the promotion of Western-Soviet contact through cultural exchanges (including music concerts), and, to some Soviet consternation, the recognition of human rights in accordance with the principles of the United Nations Charter. On reflection, however, Brezhnev assumed he could ignore those clauses when it came to the Soviet Union's internal affairs, just as he ignored similar statements in the Soviet constitution. They were mere words, after all, and the Soviets had always been quick to assert that for all of America's alleged devotion to human rights, the record was tainted by Native American genocide (both physical and cultural), the failure to grant full civil rights to minorities until forced to do so, and the support of Third World tyrants who oppressed their peoples. So, he signed the Helsinki Accords, little realizing that they would also lead to exposing Soviet economic failures and human rights hypocrisies to the world. Within the Soviet Union, however, there were those who took the mere words seriously. They included Solzhenitsyn, Andrei Sakharov, Vaclav Havel, and many others who were willing to risk their necks to hold their leaders accountable. Brezhnev had finessed himself into a trap.[58]

The situation, from the Soviet point of view, soon got worse. On October 16, 1978, white smoke floated from a stovepipe above the roof of the Sistine Chapel in Vatican City, signaling the election of a new pope to take the place of Pope John Paul, who had recently died. When the new pope emerged onto a balcony overlooking St. Peter's Square, the crowd and the world gasped. His given name was Karol Wojtyla, and he was a Polish cardinal, the first non-Italian pope in 455 years, the first Slavic pope, and the

[57] Emily S. Rosenberg, "Consumer capitalism and the end of the Cold War," in Leffler and Westad, *Cambridge History*, 3:489–513.
[58] Gaddis, *Cold War*, 186–191; Cull, "Reading, viewing, and tuning in," in Leffler and Westad, *Cambridge History*, 2:455–458.

first pope whose native land was a communist country. To honor his two immediate predecessors, he took the name John Paul II. He also soon took much of the world by storm with his charisma and charm, his sense of humor and wit, his brilliant intellect and common touch, his fierce love of Poland, and the sly and subtle ways in which he demolished what little remained of communist credibility.[59]

In Moscow, Brezhnev and the Politburo were shocked, outraged, and frightened by what had happened—a pope from officially atheistic Poland! Their fears only increased when John Paul II made his first visit home to Poland in June 1979. At every stop he made, the crowds increased from the hundreds of thousands to the millions (between two and three million in Krakow), chanting his name and proclaiming "We want God!" The contrast between the joyful crowds in Poland and the typical Soviet "spontaneous" assembly of dour party functionaries could not have been more obvious. The images were broadcast around the world, along with the pope's message to all mankind, within and without the Soviet Union: "Be not afraid." This was the message most devastating to the Soviet authorities, for by this time they had little with which to prop up their system except fear. The pope's message not only gave moral support to the Solzhenitsyns, Sakharovs, and Havels of the Soviet Union and Eastern Europe, it also gave hope and courage to the billions of people who lived under other forms of tyranny around the world. The age of the tyrant was coming to an end, he declared, and the inevitable fall of the Soviet Union would foreshadow similar collapses in other nations.[60]

There were still reasons for concern if not fear, however. The end of détente arrived about a year and a half after Jimmy Carter was inaugurated as president in January 1977. First, he announced that foreign aid from the United States would be dependent on the applicant nation's commitment to human rights. Then, on May 30, 1978, he recommended that NATO increase and modernize its military resources, signaling the end of détente—the status quo—through this shift in policy. In addition, the deployment of tactical nuclear missiles in Europe continued, putting additional pressure on the Soviets to respond with improved weapons systems of their own. In the Soviet Union, however, not only had technology not kept pace with the West, but the country was also facing near-bankruptcy after years of mismanagement of the centrally planned economy. On June 18, 1979, Carter and Brezhnev signed the SALT II agreement to limit long-range missiles and bombers. In December, NATO announced the deployment of intermediate-range nuclear weapons in Europe to counter Warsaw Pact SS-20 missiles, again putting pressure on the Soviet Union. Brezhnev had other matters weighing on him, however, such as the ongoing rebellion in Afghanistan against Soviet control. On December 20, the Soviets invaded the country, beginning a multiyear, ultimately fruitless war reminiscent of the American involvement in Vietnam. In protest, Carter cancelled American participation in the 1980 Olympics in Moscow and the U.S. Senate refused to ratify the SALT II treaty. Under détente, Carter would have reacted to the Soviet invasion of Afghanistan with words of objection, not direct actions.[61]

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[59] Gaddis, *Cold War*, 192.
[60] Gaddis, *Cold War*, 192–195.
[61] Gaddis, *Cold War*, 202–203, 210–211.

In August and September 1980, an electrician named Lech Walesa organized an independent trade union at the Gdansk shipyard in Poland. As in the case of the election of Karol Wojtyla as pope, this event shook the Soviet leadership. Why would there be a need for a trade union if the communists were the protectors of workers? The Soviet leadership responded by trying to crush the trade-union movement, which Walesa and the members had named, ironically, Solidarity (communists continually expressed their "solidarity" with oppressed workers in capitalist countries). Protests and clashes with the police arose, and—again ironically—workers in capitalist countries expressed their solidarity with the Gdansk shipyard laborers by marching with Solidarity banners held high. After the Soviet leaders had convinced General Wojciech Jaruzelski, Poland's new president, that they were about to intervene, he declared martial law and arrested Solidarity's leaders including Walesa on December13, 1981.[62]

Across the Atlantic, meanwhile, in January 1981 Ronald Reagan had been inaugurated President of the United States. A movie actor who had recently served as governor of California, Reagan was notable for single-minded anticommunism tempered by a sunny, optimistic disposition and a folksy demeanor. Many critics considered him an intellectual lightweight, but they underestimated his determination and stubbornness. Like Pope John Paul II, Reagan exuded charisma and was a very effective and rousing speaker.[63]

Although the foreign press liked to portray him as a "cowboy," or an independent, tough-talking gunslinger, in fact Reagan did not operate alone against the Soviets. Pope John Paul II, Lech Walesa, British Prime Minister Margaret Thatcher, and Solzhenitsyn and Havel, among many others, had been at the forefront of the movement long before Reagan was inaugurated president. As the leader of the United States, however, he immediately assumed a position of strategic importance. He quickly forged strong ties with Thatcher; they shared similar, conservative political philosophies, but they also found that they thought alike when it came to dealing with the Soviets.[64]

What was missing, however, was a Soviet counterpart with whom to negotiate. Brezhnev was becoming increasingly feeble and died on November 10, 1982. Yuri Andropov, the cold and aloof former head of the KGB, succeeded Brezhnev as General Secretary of the Soviet Union two days later. Andropov fell ill and died in a Soviet hospital on February 9, 1984, and Konstantin Chernenko took over on February 13. The decrepit, aged Chernenko died on March 10, 1985. Reagan, exasperated, wondered aloud how he could ever deal with the Soviet leaders when they kept dying on him.[65]

The Soviet general secretaries were not the only leaders who faced death early in the 1980s. Barely two months into his first term as president, Reagan was shot by John Hinkley, a deranged man, on March 30, 1981, in Washington. The president survived, thanks to successful surgery. A month and a half later, on May 13, Mehmet Ali Agca

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[62] Gaddis, *Cold War*, 196–197, 218.
[63] Gaddis, *Cold War*, 217–218.
[64] Gaddis, *Cold War*, 223.
[65] Gaddis, *Cold War*, 224, 228.

shot Pope John Paul II as he rode in his "popemobile" among the faithful in St. Peter's Square. The pope also survived, and the assassination attempt was quickly linked to Bulgarian intelligence. Soviet complicity was strongly suspected, given the Soviet leaders' fear of the pope, but never proved.[66]

Thatcher and Reagan soon found themselves with a Soviet leader with whom they could do business— Mikhail Gorbachev, who succeeded Chernenko on March 13, 1985. Middle-aged, well-educated, articulate, bright, and friendly, Gorbachev charmed Vice President George H. W. Bush and Secretary of State George Schultz when they met him at Chernenko's funeral. Reagan met Gorbachev for the first time in November 1985 at the Geneva summit conference and also liked him, although the summit ended inconclusively over one of Reagan's ideas, the Strategic Defense Initiative (SDI), which he offered to share.[67]

Reagan first proposed SDI in a speech on March 23, 1983, thereby essentially repudiating the concept of Mutual Assured Destruction. Instead, he proposed using satellite, computer, and laser technology to destroy ICBMs immediately after launch. If such a system were employed, Reagan said, nuclear missiles would be obsolete and should be scrapped. He was proposing, in other words, the complete abolition of nuclear weapons. In the Kremlin, Andropov and the Politburo scoffed publicly but privately were panicked. Although the Soviet Union had caught up with the United States in the production of ICBMs, the country was hopelessly behind in computer technology and the sciences that might enable it to counter SDI. Andropov became convinced that Reagan's proposal was merely a prelude to a surprise nuclear strike, and when a Korean Air Lines passenger jet strayed into Soviet territory on September 1, 1983, the nervous Soviets shot it down. Later, in November, when NATO forces carried out their annual fall military exercises (Able Archer 83) but at a higher level of leadership participation than usual, Andropov again convinced himself that a nuclear attack was imminent and put the country on alert. It was the closest brush with nuclear war since the Cuban Missile Crisis.[68]

Gorbachev learned that Reagan was sincere in his determination to implement SDI and eliminate the nuclear stockpile. Gorbachev also believed that Reagan and the United States would never launch a nuclear attack on the Soviet Union. Another turning point in Gorbachev's thinking occurred on April 26, 1986—an explosion at the Chernobyl nuclear power plant that spread contamination over a wide area. Investigations showed that the disaster was partly the result of incompetence, shoddy work, and carelessness, further convincing Gorbachev that fundamental changes were necessary (glasnost, or publicity, and perestroika, or restructuring) within the Soviet Union if there was to be any hope of retaining the people's faith in the communist system. When Reagan and Gorbachev met at the next summit in Reykjavik, Iceland, in October 1986, both men seemed eager to find a way to eliminate the nuclear-weapons threat. The meeting ended unhappily, however, when Gorbachev kept pressing Reagan to confine SDI to the research laboratories instead of developing and deploying it, and Reagan refused. Negotiations

[66] Gaddis, *Cold War*, 218–219, 222.
[67] Gaddis, *Cold War*, 229–233.
[68] Gaddis, *Cold War*, 226–228.

continued nonetheless, and at the next summit meeting, in Washington in December 1987, Reagan and Gorbachev signed a treaty eliminating intermediate-range nuclear weapons in Europe.[69]

Reagan not only pressed for the abolition of nuclear weapons, he also urged Gorbachev to relax restrictions and increase freedoms in the Soviet Union. Most famously, in a speech at the Brandenburg Gate in West Berlin on June 12, 1987, Reagan pointed at the Wall and demanded, "Mr. Gorbachev, tear down this wall!" Gorbachev ignored the request, but he was at the time letting the world know that he would not oppose change with the use of force. In a speech to the United Nations on December 7, 1988, Gorbachev denounced force or even the threat of force as instruments of foreign policy. Fundamental change indeed had come to the Soviet Union.[70]

In China, however, the situation was different. Mao Zedong had died on September 9, 1976, setting off a long struggle for the succession. The eventual winner of that struggle, by the end of 1978, was Deng Xiaoping, a Chinese Communist Party leader whom Mao had purged several times. The resilient Deng, once in power, praised many of Mao's accomplishments, including making China a great power and opening relations with the United States, but repudiated the disastrously managed central economy. Instead, Deng embraced capitalism while maintaining the other elements of Mao's legacy. As a result, the Chinese economy had become one of the largest in the world by the time Deng died in 1997. His determination to restrict freedoms in the political arena, however, led to the Tiananmen Square Massacre in Beijing on the night of June 3–4, 1989. Students had been demonstrating there for more democracy—Gorbachev had even paid them a visit when he was in the city—but Deng finally had seen enough and ordered a brutal military crackdown. An unknown number of students were killed. As tanks rumbled out of the square on June 5, their work accomplished, a man carrying two shopping bags walked into the street and blocked their path. For several moments, the man harangued the tank commander before bystanders hustled him away. A video camera in a nearby hotel captured the episode, which was soon broadcast around the world and became an iconic image of individual courage.[71]

Individuals were continuing to have an effect in Eastern Europe and the Soviet Union as well. After George H. W. Bush succeeded Reagan as president on January 20, 1989, he and Gorbachev eyed each other warily, with Bush concerned that the Soviet leader's disarmament promises might be a sham. Over time they grew to trust each other, although there was never the warmth between them that Gorbachev and Reagan shared. In Hungary, the government dismantled the fence along the border with Austria, and soon East Germans began flowing through Hungary to the West. In Poland, Jaruzelski recognized Solidarity and allowed its candidates to participate in an election of delegates to a new bicameral legislature. Solidarity won all the seats it contested in the lower

[69] Gaddis, *Cold War*, 231–234.
[70] Gaddis, *Cold War*, 235–236.
[71] Gaddis, *Cold War*, 242–243.

house and lost only one in the upper house. In each case, Gorbachev made it clear that the countries were on their own; there would be no Soviet intervention.[72]

The East German government, under the hard-line communist ruler Erich Honecker, was extremely displeased over the Hungarian situation. When Gorbachev attended a parade during the East German government's fortieth anniversary celebrations on October 7–8, 1989, however, the marchers cheered him, not Honecker. On October 9, in Leipzig, antigovernment demonstrations almost resulted in a version of Tiananmen Square until an orchestra leader stepped from the crowd and persuaded the security forces to leave. Honecker resigned on October 18 and his successor, Egon Krenz, decided to ease the pressure by relaxing but not eliminating the rules for travel to the West. On November 9, a government official misread the hastily drafted decree at a press conference and announced instead that East Germans who wished to leave could do so at any border crossing, effective immediately. Seemingly within minutes, crowds assembled at the crossings, including along the Berlin Wall, where the guards had no instructions. Finally, the guards at one crossing took it on themselves to open the gate, and East Berliners poured through into West Berlin. That night, television viewers around the world were stunned to see East and West Germans atop the Wall, dancing on it and attacking it with hammers, while the guards stood by, machine guns slung on their shoulders, and merely watched.[73]

Thus began the cascade. On November 10, 1989, the ruler of Bulgaria since 1954 announced that he was stepping down, and the communist party there began negotiating with the opposition for free elections. On November 17, prodemocracy demonstrations erupted in Prague, and within weeks Alexander Dubcek was installed as chairman of the national assembly and Vaclav Havel was president of Czechoslovakia. In Romania, the brutal dictator Nicolai Ceausescu decided to follow Deng's example and on December 17 ordered his troops to gun down demonstrators. When he addressed a throng of supposed supporters on December 21, they booed him off the podium. He and his wife attempted to flee, were captured and tried for murder, and were executed on Christmas Day. The end of East Germany came the next year, when the two Germanys were reunified on October 3, 1990. On February 19, 1991, Lithuania voted to become an independent nation.[74]

In July 1991, Bush arrived in Moscow to sign the START I treaty—the strategic arms reduction treaty that had been the subject of multiple negotiations and meetings since Reagan had first proposed it in 1983. Gorbachev, exhausted, left the capital early in August for his annual Crimean vacation. On August 18, his communication links were severed and a delegation arrived at his dacha to inform him that he had been deposed. Over the next few days, however, the conspirators discovered to their chagrin that they had neglected to secure the support of the police and the army, that the rest of the world was refusing to take them seriously, and that Russian president Boris Yeltsin had greater

[72] Gaddis, *Cold War*, 239–241.
[73] Gaddis, *Cold War*, 244–246.
[74] Gaddis, *Cold War*, 246–247, 249–252.

power than they did, or that Gorbachev had, for that matter. When Yeltsin climbed on a tank in Moscow to announce that the coup was a failure, it failed.[75]

Yeltsin abolished the Communist Party of the Soviet Union, confiscated its property, disbanded Gorbachev's Congress of People's Deputies, and recognized the independence of the Baltic States and several other republics. On December 8, 1991, Yeltsin signed an agreement with the Ukraine and Byelorussia to form the Commonwealth of Independent States and called Bush to inform him. Gorbachev protested, but then on Christmas Day he acknowledged reality by signing a decree that transferred the Soviet nuclear supply to Russia and abolished the Soviet Union. Without a pair of adversaries to confront each other any longer, the Cold War truly was over.[76]

In the United States, the trend toward "standing down" in response to Gorbachev's concessions had begun the previous year. On July 24, 1990, the Strategic Air Command's Looking Glass emergency airborne command post was taken off continuous alert. Beginning September 18, 1991, all Strategic Air Command bombers and the Minuteman II missiles were likewise removed from alert status. Between 1991 and 1997, the Minuteman II silos were deactivated and imploded. Minuteman IIIs will remain operational until 2020.[77]

At the beginning of the Cold War and the nuclear age, the chances that mankind would survive the next half-century appeared slim. The most-devastating war in human history had ended with the creation of the greatest weapon ever known. Its effects frightened everyone on either side of the Iron Curtain, because everyone knew that weapons were made to be used and because never yet had the fear of a weapon, much less human willpower, restrained men from waging war. The weapon itself was viewed and described in apocalyptic terms: "Now I am become death, the shatterer of worlds"; doomsday; the end of the world. Many scientists and ethicists believed that people had created something that outstripped their ability to control it. Science run amok became a recurring theme in popular literature, especially in American motion pictures.[78]

In addition, two diametrically opposed political systems each controlled the bomb and half the world. On the one side in the early years stood the United States and its allies, seemingly disorganized, with a variety of capitalist governments based on the will of their peoples. On the other side, under one of the most bloody-handed tyrants in history, stood the Soviet Union and its supposedly monolithic communist empire. Each was engaged in a struggle for domination, each wished for the end of the other, and each waged a relentless race for arms superiority over the other. The result, in both countries, was the expenditure of enormous amounts of national treasure to construct complicated systems of aggression and defense. Each side used subterfuge to create uncertainty and fear to keep the other side guessing. The chances of a misstep that would be fatal to both sides seemed almost guaranteed.

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[75] Gaddis, *Cold War*, 256.
[76] Gaddis, *Cold War*, 256–257.
[77] Berhow, *Missile Systems*, 6, 63.
[78] Loeber, *Building the Bombs*, 35.

And yet, it did not happen. In part this was because neither side was controlled by nihilists. Each wanted to outlive the other, knowing that any attempt to destroy the other would lead to self-destruction. Even when the threats seemed the greatest, each side trod carefully, not daring to push the other too far. Because luck (sometimes bad luck) can trump skill, however, leaders on both sides came to understand that the equation had to change, that a way had to be found out of the armament thicket that had grown out of control.[79]

In the end, the Cold War ceased to exist in part because rational leaders became convinced that what people had created they could also change. Pope John Paul II encouraged millions, regardless of national borders, to reject the idea that fear and brutality must always dominate the human spirit, and the people of Eastern Europe rose to his challenge. Ronald Reagan proposed a defense system that would logically lead to abolishing nuclear weapons altogether—an idea that even the Soviets could accept with some relief. And Mikhail Gorbachev, the leader of Earth's last great empire, decided to dismantle that empire in the name of sanity and human survival. And after almost five decades of living under the threat of nuclear annihilation, all of this had been accomplished without the explosion of a single atomic bomb. In a sense, then, although the Cold War ended with the bankruptcy of communism and the dismemberment of the Soviet Union, among mankind there were no losers.

Since then, debates have raged over just what brought the end of the arms race, the seemingly sudden collapse of the Soviet Union, and the end of the Cold War. Some have argued that Reagan's SDI and his hard-line approach to communism turned the tide, but SDI was confined to the drawing board and Reagan moderated his approach considerably after 1983. Others give most of the credit to Gorbachev and his reforms, which, once unleashed, took on a life of their own. Pope John Paul II and his spiritual leadership, as well as the boldness of Dubcek and Walesa and Havel, deserve their due. Then there were the nameless, courageous millions who marched, faced down tanks, broke through borders and demolished walls, put their lives on the line and told their erstwhile Soviet leaders that it was all over, that they no longer were believed, that they had no authority. Perhaps the answer is that all of these people and factors together created the perfect storm that blew down the Iron Curtain, rendered nuclear war between the powers impossible except by accident, and brought the Cold War to an end.[80]

There was hope, in the United States at least, of a "peace dividend"—that the end of the Cold War would enable the nation to refocus its treasure on domestic programs instead of weapons systems. It was not to be. The Cold War ended but not without consequences. Fifty years of fighting proxy wars that resulted in millions of deaths, interfering in the affairs of other nations, propping up tyrants for temporary and questionable gains, shuffling the distribution of political power, raising and then dashing hopes, suppressing dissent, creating powerful groups and cliques devoted to their interests at the expense of

[79] Gaddis, *Cold War*, 262.
[80] Beth A. Fischer, "US foreign policy under Reagan and Bush," in Leffler and Westad, *Cambridge History*, 3:267–288.

others—all practices that each side was guilty of at one time or another—left a legacy of resentment and frustration in many countries around the world. Many of our current conflicts, such as the 9/11 attacks and the resulting "war on terror," have their roots in the Cold War and can be considered as among its legacies.

Time Line: The Cold War

1945

May 7: German military leaders surrender to Western Allies at Rheims, France.

May 8: German military leaders surrender to Soviets and Western Allies at Berlin, Germany.

July 3: Allied troops complete occupation of Berlin.

July 16: United States explodes first atomic bomb near Alamogordo, New Mexico, in a test code-named TRINITY.

July 17–August 2: President Harry S Truman, Prime Ministers Winston Churchill and Clement Atlee, and Soviet leader Josef Stalin meet in Potsdam and refine postwar division of Europe.

August 6: U.S. drops first atomic bomb on Hiroshima.

August 9: U.S. drops second atomic bomb on Nagasaki.

August 14: Japan surrenders.

August 26: U.S. announces its intention to occupy Japanese-held Korea south of the 38th parallel; Soviet Union to occupy the north.

September 2: Ho Chi Minh's troops seize power in Hanoi and proclaim an independent Vietnam.

September 22: French forces return to Vietnam.

November 5: Communist Party wins only 17 percent of the vote in Hungarian election. Stalin moves to eradicate opposition and consolidate Soviet position there.

November 29: Yugoslavia becomes a federated republic under Marshal Josef Tito.

1945–1946: America and Great Britain withdraw their troops from Iran; the Soviet Union does not.

February 28: Secretary of State James F. Byrnes introduces new "get tough with Russia" policy at Overseas Press Club, New York.

March 5: Winston Churchill, in a speech at Westminster College, Fulton, Missouri, says an "iron curtain" has descended across Europe.

March 21: Strategic Air Command, Tactical Air Command, and Air Defense Command are created within the Army Air Forces.

June 14: Bernard Baruch presents Truman's international atomic energy control plan to United Nations. Plan would place fissionable materials under control of a U.N. agency equipped with inspection powers and exempt from the great-power (Security Council) veto. Soviet Union objects to American domination of any U.N. agency and is unwilling to surrender its veto or accept inspection within the Soviet Union.

July 1: U.S. atomic bomb tests, using the Nagasaki-type implosion bomb, held at Bikini Atoll, Republic of the Marshall Islands.

August 1: Truman signs Atomic Energy Act, creating Atomic Energy Commission (AEC) and transferring nuclear weapons design and development from military to civilian control.

December 20: Viet Minh forces clash with French forces in beginning of 8-year French Indochina war.

1947

March 12: Truman asks Congress to support "free peoples who are resisting attempted subjugation by armed minorities or outside pressures" (Truman Doctrine). Congress grants $400 million in aid to Greece and Turkey to defend against Communist guerrillas.

April 16: Bernard Baruch coins the term "Cold War" in a speech in South Carolina
May 31: Communist government takes over Hungary.
June 5: Secretary of State George C. Marshall calls on European nations to draft plan for European economic recovery, offering aid in planning and "later support" (Marshall Plan). Eastern Europe walks out of initial Paris meeting at Soviet behest. The following March, Congress votes to fund the Marshall Plan to aid 16 European nations.
July: George F. Kennan, writing anonymously in *Foreign Affairs*, articulates America's policy to block peacefully the expansion of Soviet political and economic influence into vulnerable areas around the world ("containment").
July 26: National Security Act creates Department of Defense and several new agencies, including the National Military Establishment with three separate departments of the Army, the Navy, and the new U.S. Air Force, National Security Council (NSC), Central Intelligence Agency (CIA), and the Joint Chiefs of Staff.
October 29: The U.N. authorizes the creation of the State of Israel.
December 30: Romania's monarchy is replaced by a communist regime.
1948
During the year, Truman decides that nuclear weapons shall be under the direct control of the president; for the first time, battlefield commanders are denied the right to decide to deploy a weapon.
February 25: Communist coup in Czechoslovakia.
March 17: Brussels Treaty, signed by Belgium, Britain, France, Holland, and Luxembourg, creates an Atlantic regional mutual-defense pact, the Brussels Pact, in part a response to the Czechoslovakian crisis.
April 1: Soviet Union blockades all highway, river, and rail traffic into Western-controlled West Berlin to force the Western powers out of Berlin. The West responds by airlifting supplies to West Berlin beginning June 21 and counter-blockading East Germany. The Soviet blockade ends after 321 days.
May 14: Israel declares independence. Five Arab states invade Israel in the first Arab-Israeli war.
July 26: Truman issues executive order desegregating the armed forces.
August 3: Whitaker Chambers accuses Alger Hiss of having been a key member of the communist underground in Washington.
August 15: Republic of South Korea is founded.
September 9: The Korean People's Democratic Republic is founded in North Korea.
1949
January 29: Foreign aid policy announced by Truman.
April 4: Belgium, Canada, Denmark, France, Great Britain, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, and the United States create the North Atlantic Treaty Organization (NATO) for mutual defense. Greece, Spain, Turkey, and West Germany later join. In 1955, Soviet Union forms competing Warsaw Pact.
May 12: Berlin blockade ends.
August 29: The Soviet Union explodes its first atomic bomb in a desert in Kazakhstan.
September 3: During a Japan-to-Alaska reconnaissance flight, an Air Force RB-20 on patrol off Siberia detects evidence of the Soviet nuclear test.

September 21: German Federal Republic established as Allied High Commission relinquishes control of the administration of the American, British, and French occupation zones.
September 23: Truman announces that the Soviet Union had exploded an atomic bomb sometime during the latter half of August.
October 1: People's Republic of China is established.
December 7: The Chinese Nationalist government retires to Taipei, Taiwan.
1950
January 21: Alger Hiss convicted of perjury.
January 31: Truman approves the development of the hydrogen bomb.
February 7: The U.S. recognizes the state of Vietnam and the kingdoms of Laos and Cambodia.
February 9: Senator Joseph P. McCarthy delivers speech to Republican Women's Club of Ohio County, Wheeling, West Virginia, in which he claims to have a list of "known" Communists "making policy" in the State Department.
February 15: Sino-Soviet Pact creates a bilateral defense commitment, settles historic territorial issues between China and the Soviet Union, and initiates modest program of Soviet aid to China.
April: NSC reappraises America's strategic position and redefines the Cold War as military rather than political, postulating a Soviet "design for world domination." NSC 68 called for both a buildup of nuclear weapons and for enlarged capacity to fight conventional wars whenever the Russians threatened "piecemeal aggression." It also called for a reduction of social welfare programs and other services not related to military needs and for tighter internal security programs.
May 9: Truman announces U.S. military aid to French in Indochina.
June 25: North Korean troops cross the 38th parallel in a surprise invasion of South Korea.
September 23: Congress passes McCarran Internal Security Act to monitor domestic communist activities.
October 19: Chinese units cross the Yalu River into Korea.
December 23: U.S. signs a Mutual Defense Assistance Agreement with Vietnam.
1951
May 9: AEC explodes thermonuclear device at Enewetok, Marshall Islands.
May 27: Tibet ends resistance to Chinese takeover.
September 8: U.S. and Japan sign peace treaty with U.S. military presence for defense of Japan. U.S. also negotiates mutual security agreement with Philippines, Australia, and New Zealand (ANZUS Pact).
1952
January 31: Truman denounces McCarthy for "anti-Communist tactics."
June 14: Truman lays keel of USS *Nautilus,* first nuclear submarine.
November 1: AEC explodes hydrogen bomb at Enewetok, Marshall Islands.
November 4: Dwight D. Eisenhower elected president.
1953
January 20: Eisenhower inaugurated as president.
March 5: Josef Stalin dies in Moscow.

March 15: Soviet MIG-15 fighters fire at U.S. WB-50 weather plane near the Kamchatka Peninsula.
July 27: Armistice is signed ending the Korean War. Korea remains divided at the 38th parallel, creating the DMZ (De-Militarized Zone).
August 1: U.S. Information Agency (USIA) is established.
August 14: Soviet Union explodes a hydrogen bomb.
August 16: Shah of Iran flees to Rome after attempting and failing to dismiss Prime Minister Mohammed Mossadegh, who sought to nationalize the Iranian oil industry.
August 22: U.S.-backed coup overthrows Mossadegh and restores Shah of Iran.
1954
March 1: U.S. explodes hydrogen bomb in Marshall Islands (BRAVO); yield far greater than expected.
May 1: Soviet Union unveils M-4, its first jet-propelled long-range bomber.
May 8: French army is defeated in Vietnam at Dien Bien Phu.
May 30: First operational NIKE Ajax missiles deployed at Fort Meade, Maryland.
June: First Atlas intercontinental ballistic missiles (ICBMs) tested.
July 17–28: Geneva Accords end French colonialism in Indochina; Vietnam divided at the 17th parallel.
August 24: Communist Party outlawed in U.S. as Eisenhower signs Communist Control Act.
September 7: Australia, Britain, France, Pakistan, the Philippines, Thailand, New Zealand, and the United States form the Southeast Asia Treaty Organization (SEATO), an anticommunist alliance against "massive military aggression."
September 27: U.S. and Canada agree to construct the Distant Early Warning (DEW) line of radar stations from Alaska across Canada to Greenland to warn of surprise attack.
October 13: U.S. approves production of first supersonic bomber, the B-58
October 23: West Germany is invited to join NATO and becomes a member on May 5, 1955.
December 2: Senate condemns McCarthy, ending the McCarthy era.
1955
April 14: Nike Ajax missile at Fort Meade, Maryland, accidentally launched, injuring one crewman; the missile fell apart in the air, causing no damage.
Mid-year: Nikita Khrushchev consolidates his power in the Soviet Union as Stalin's successor.
May 14: Warsaw Pact signed, calling for the mutual defense of Albania, Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Rumania, and the Soviet Union.
June 15: U.S. stages its first nationwide civil defense exercise.
June 29: B-52 intercontinental bomber deployment begins in the United States.
July: Fear of a "Bomber Gap" ensues after Soviets fly Bear and Bison long-range bombers multiple times past American visitors at an air show, causing an exaggerated assessment of Soviet inventories.
July 18: Eisenhower, Khrushchev, and Eden discuss disarmament and European security at Geneva Summit Conference. Eisenhower proposes "Open Skies," which would allow aerial reconnaissance of each other's territories. Khrushchev refuses to allow it.
July 31: DEW Line begins operation in Alaska and Canada.

November 19: Baghdad Pact signed by Great Britain, Iran, Iraq, and Turkey. U.S. pledges military and political liaison.

1956

July 27: Egyptian president Gamal Abdel Nasser nationalizes the Suez Canal in retaliation for the U.S. and the World Bank's withdrawing financial support for the Aswan Dam.

October 29-31: Britain, France, and Israel attack Egypt.

October 23–November 4: Hungarians revolt against communist rule and make futile pleas for U.S. assistance as Soviet forces crush the resistance.

November 6: Eisenhower reelected.

November 17: "We will bury you" statement made by Khrushchev to Western diplomats.

1957

January 5: Eisenhower Doctrine presented to Congress, allowing the president to commit troops to the Middle East to thwart communist aggression there.

January 20: Eisenhower is inaugurated president for a second term. He insists on planning for total nuclear war (eventually called "mutual assured destruction"), rather than limited nuclear war, as a means of avoiding total war altogether because of the consequences for mankind.

March 25: Belgium, France, Italy, Luxembourg, the Netherlands, and West Germany agree to form the European Economic Community (EEC), or the Common Market.

August 26: Moscow announces its first successful ICBM test.

September 19: First underground nuclear test takes place in a mountain tunnel near Las Vegas.

October 4: Soviet Union launches Sputnik, first satellite to orbit Earth, prompting U.S. fears of a "missile gap."

November 3: Soviet Union launches Sputnik 2, which carries the first living creature (a dog) into space.

December 17: First successful test of Atlas ICBM.

December: Gaither Report to the NSC states Soviet Union has achieved superiority in long-range ballistic missiles, adding to fears of a "missile gap." In reality, this gap does not exist.

1958

January 31: U.S. Army launches American satellite, *Explorer I*, into orbit.

March 5: Radar tracks first-known Soviet long-range bombers flying a reconnaissance mission over Alaska.

March 27: Khrushchev becomes Soviet Premier in addition to being First Secretary of the Communist Party.

March 30: Soviet Union suspends atmospheric nuclear testing.

May 22: Accidental explosion at Nike site NY-53 near Middletown, New Jersey, destroyed 8 Nike Ajax missiles, kills 10 men, and injures 3 others.

June: First Titan I ICBM delivered; will replace Atlas missiles.

June 30: First U.S. Nike Hercules missile, with increased range capabilities, declared operational.

October 1: National Aeronautics and Space Administration (NASA) is formally established.

October: U.S. and Britain suspend atmospheric testing.
November: Khrushchev delivers ultimatum: Begin East-West talks over the future of Germany (a reunified, neutral, denuclearized Germany) or face the permanent division of Germany; Khrushchev soon backs down.

1959

January 6: Fidel Castro, leader of the Cuban Revolution, becomes premier.
March: Nike Hercules batteries at Fort Richardson, Alaska, become operational.
April: Aleutian DEW Line stations become operational.
July 24: U.S. Vice President Richard M. Nixon visits the Soviet Union, takes on Khrushchev in the "kitchen debate" (while the two were touring a model kitchen) on the merits of capitalism vs. communism.
September: First successful launch of Minuteman solid-fuel ICBM booster rocket.
September 9: Atlas ICBM becomes operational.
September 13: Soviet spacecraft reaches the moon and crashes there.
September 15: Khrushchev visits United States, meets Eisenhower at Camp David, and agrees to summit meeting in Paris, May 16, 1960.
December 1: Antarctica Treaty signed in Washington; 12 nations agree to reserve Antarctica for scientific research, free from political and military uses.

1960

March: Eisenhower agrees to CIA proposal to train Cuban exiles to subvert Castro regime.
May 1: U-2 reconnaissance plane shot down over central U.S.S.R. Pilot Gary Powers is held by the Soviet Union. Khrushchev announces incident on May 5, after Eisenhower has issued a contradictory statement, thereby catching the president in a falsehood.
May 16: East-West summit conference in Paris collapses over U-2 incident.
May 24: U.S. launches *Midas II* satellite for military reconnaissance purposes.
July 20: U.S. fires first ballistic missile from a submerged submarine off Cape Canaveral.
August 19: U-2 pilot Gary Powers sentenced by the U.S.S.R. to ten years in prison; he is exchanged for a Soviet spy in 1961.
November 8: John F. Kennedy elected president.
December 20: Ho Chi Minh, leader of the Republic of Vietnam, organizes the National Liberation Front of South Vietnam (NLF).

1961

January 3: Eisenhower Administration breaks diplomatic relations with Cuba.
January 17: Eisenhower warns of potential "unwarranted influence . . . by the military-industrial complex" in his farewell address.
January 20: John F. Kennedy inaugurated as president.
February: First successful launch of complete Minuteman ICBM, at Cape Canaveral, Florida.
March 13: Kennedy proposes the Alliance for Progress, a 10-year plan of economic aid to Latin America.
April 12: Soviet astronaut Yuri Gagarin is the first man to orbit the Earth.
April 17: Bay of Pigs landing by more than 1,000 CIA-trained Cuban refugees fails in its attempt to "liberate" Cuba.

May 5: First American in space, Alan B. Shepard, makes suborbital flight aboard a Mercury capsule.
May 11: Kennedy authorizes American advisors to aid South Vietnam against the forces of North Vietnam.
May 25: Kennedy pledges to put man on the moon before decade ends.
June 3: Vienna Summit: Khrushchev reissues ultimatum to begin talks on Germany within 6 months or face a permanent the division of Germany. Kennedy responds with call for military buildup, beginning of civil defense program.
August 13: East Germany closes the Brandenburg Gate, sealing the border between East and West Berlin in preparation for building the Berlin Wall.
September 1: Soviet Union resumes atmospheric testing of nuclear weapons.
September 15: U.S. resumes underground testing of nuclear weapons**.**
1962
January 29: East-West Conference on Banning Nuclear Weapons Tests, begun in October 1958, collapses in deadlock at Geneva.
February 20: John Glenn becomes first American to orbit the Earth.
April 25: United States resumes atmospheric testing of nuclear weapons.
October: Minuteman I became operational; ICBMs deployed in silos for blast protection.
October 14: U-2 flying over Cuba photographs Soviet bases capable of launching nuclear missiles against U.S. cities, precipitating the Cuban Missile Crisis.
October 22: Kennedy announces the naval "quarantine" of Cuba in response to the construction of Soviet missile bases there. Kennedy warns that a nuclear attack launched from Cuba would be considered a Soviet attack requiring full retaliation**.**
October 22: First flight of Minuteman ICBMs placed on operational alert at Malmstrom AFB, Montana.
October 28: Khrushchev agrees to remove offensive weapons from Cuba and the U.S. agrees to remove missiles from Turkey and end Cuban-exile incursions.
November 20: Kennedy announces end of Cuban blockade, satisfied that all bases are removed and Soviet jets will leave the island by December 20.
1963
June 26: Kennedy visits West Berlin, declares American solidarity with residents in "Ich bin ein Berliner" speech.
June 10: Kennedy, in speech at American University, calls for reconsideration of Cold War as "holy war."
June 20: "Hot Line" established as a direct teletype link between the White House and the Kremlin, to begin service on August 30.
July 24: Cuba seizes the U.S. embassy in Havana.
October 7: Kennedy signs Limited Test Ban Treaty. Britain, Soviet Union, and United States agree to outlaw tests in the atmosphere, under water, and in outer space.
October 11: Kennedy endorses his Commission on the Status of Women's report on gender discrimination.
November 1: South Vietnamese President Ngo Dinh Diem is assassinated.
November 22: President Kennedy is assassinated; Vice President Lyndon B. Johnson becomes president.
1964

January 8: Lyndon Johnson calls for war on poverty and greater efforts on civil rights in his first State of the Union Address.
February 2: Unmanned U.S. *Ranger VI* lands on the Moon.
July 2: Johnson signs Civil Rights Act of 1964.
July 18: Riots break out in urban ghettoes of New York City and Rochester, the first of the series of African American riots.
August 2: Johnson orders immediate retaliation for the alleged North Vietnamese attack on U.S. destroyers *Maddox* and *Turner Joy* in the Gulf of Tonkin.
August 7: Congress approves Gulf of Tonkin Resolution giving the President power to take "all necessary measures to repel any armed attack against the forces of the United States, and to prevent further aggression."
September 27: Warren Commission report on the assassination of President Kennedy is released; confirms no Soviet involvement.
October 15: Khrushchev is ousted, replaced by Leonid Brezhnev and Alexei Kosygin.
October 16: China detonates its first atomic bomb.
November 3: Lyndon B. Johnson elected president.

1965

March 8: First U.S. Marines in Vietnam wade ashore at Da Nang.
April: Last Atlas ICBMs are phased out; replaced by Minuteman missiles.
May 2: Johnson sends troops to the Dominican Republic to "prevent another Communist state in this hemisphere."
November: Battle of the Ia Drang Valley, the first major clash between the U.S. and the North Vietnamese Army.
November 29: Atomic Energy Commission conducts 80-kiloton underground nuclear test, Long Shot, the first of three on Amchitka Island, Alaska.
December 24: U.S. forces in Vietnam number 184,300.

1966

January: ICBM Minuteman II, with improved accuracy, enters service.
February: Senate hearings on the Vietnam War chaired by Senator J. William Fulbright begin.
March 25: Anti–Vietnam War rallies staged in seven United States and European cities.
April 30: Chinese Cultural Revolution begins with Chou En-lai's call for antibourgeois struggle.
June 2: *Surveyor I* makes perfect soft landing on moon.
December: U.S. forces number 362,000 in Vietnam.

1967

January 27: Outer Space Treaty limits military uses of space, signed by the U.S., U.S.S.R., and 60 other nations.
February 14: Treaty of Tlatelolco, signed in Mexico by all Latin American states except Cuba, prohibits the introduction or manufacture of nuclear weapons.
June 17: China explodes its first hydrogen bomb.
October 18: Soviet *Venus IV* probe lands on Venus.
December: U.S. forces in Vietnam number 485,000.

1968

January: Alexander Dubcek leads Prague Spring reforms in Czechoslovakia to bring about "socialism with a human face."

January 30: Tet Offensive, attacks on South Vietnamese cities by North Vietnamese and National Liberation Front troops.
March 16: My Lai massacre in Vietnam.
March 31: Johnson halts bombing of North Vietnam (later resumed) and announces that he will not seek re-election as president.
April 4: Martin Luther King Jr. assassinated.
June 5: Robert F. Kennedy assassinated.
July 1: Nuclear Arms Nonproliferation Treaty signed by the United States, U.S.S.R., and 58 other nations.
August 20: Soviet invasion of Czechoslovakia ends Dubcek experiment.
October 31: Johnson halts bombing of North Vietnam, invites South Vietnam and the Viet Cong to Paris peace talks.
November 5: Richard M. Nixon elected president.
December: U.S. forces in Vietnam number 535,000.

1969

January 20: Richard M. Nixon inaugurated president.
March: U.S. bombing of Cambodia begins.
June 8: "Vietnamization" of war begins. Nixon orders first troops out of Vietnam. U.S. forces number 475,200.
July: Nixon reaffirms U.S. commitment to defend its allies, but calls on Third World nations to assume primary responsibility for their security (Nixon Doctrine).
July 20: Neil Armstrong and Edwin "Buzz" Aldrin land on the Moon.
September 1: Muammar Khadaffi comes to power after coup in Libya.
September 3: Ho Chi Minh, communist leader of North Vietnam, dies.
November 15: March on Washington draws record 250,000 antiwar protesters.
November 17: Strategic Arms Limitation Talks (SALT) begin between U.S. and U.S.S.R.

1970

February: Paris Peace Talks begin between U.S. Secretary of State Kissinger and North Vietnamese diplomat Le Duc Tho.
March 5: Treaty on the Non-Proliferation of Nuclear Weapons between the U.S. and the Soviet Union goes into effect, preventing transfer of nuclear weapons to nonnuclear nations or production of nuclear weapons in those nations.
April 29: U.S. troops invade Cambodia.
May 4: Four Kent State University students killed by National Guardsmen while protesting Vietnam War.
May 15: Two Jackson State College students killed by police while protesting Vietnam War.
August: Minuteman III ICBM with multiple warhead capacity enters service in United States.
September 15: Nixon authorizes U.S.-backed coup in Chile, according to a 1975 Senate Intelligence Committee report.
December: U.S. forces in Vietnam number 334,600.

1971

February 15: The *New York Times* begins serial publication of the Pentagon Papers.
November 15: The People's Republic of China joins the U.N.

1972
February 17–27: Nixon visits China, pledges to withdraw U.S. forces from Taiwan.
May 8: Nixon orders the mining of Haiphong Harbor and intensive bombing of all military targets in North Vietnam.
May 26: SALT I agreement signed restricting development of ABMs and freezing numbers of ICBMs and submarine-launched ballistic missiles (SLBMs) in place for 5 years.
May 29: Nixon and Brezhnev sign agreement on the "basic principles of détente" which produces a relaxation on the tensions, recognizes the Soviet Union as the military-political policeman of Eastern Europe, and opens economic markets between the two countries.
June 17: Watergate burglary.
August 12: U.S. bombers deliver largest 24-hour bombing of the Vietnam War on North Vietnam.
October: Moscow Summit between Nixon and Brezhnev.
November 7: Nixon reelected.
December 7: *Apollo 17* makes final manned lunar landing.
December 13: Paris Peace Talks break down.
December 17–30: Linebacker II bombing of Hanoi and North Vietnam.
December: Nixon orders renewed bombing of Hanoi and Haiphong, North Vietnam.
1973
January 23: Nixon announces Vietnam War will end on January 28 and troops will be removed within 60 days.
January 27: Paris Accords establish cease-fire and political settlement of Vietnam War.
March 29: Military Assistance Command Vietnam closes, last U.S. soldiers leave.
May 11: East and West Germany establish formal diplomatic relations.
August 15: U.S. bombing of Cambodia ends.
September 11: Chilean Government of Salvador Allende overthrown in a violent coup. Allende dies.
October 6: Yom Kippur War begins with Egypt and Syria fighting Israel.
October 17: Arab oil producers begin embargo against the United States.
November 6: War Powers Act passed by Congress limits power of president to wage undeclared wars.
1974
March 1: Indictment returned against seven former presidential aides in the Watergate conspiracy. Nixon named an unindicted co-conspirator.
March 18: Arab oil embargo ends.
May 9: House Judiciary Committee opens presidential impeachment hearings.
May 18: India announces it has held an underground nuclear test.
July 27: House Judiciary Committee votes to recommend Nixon's impeachment.
August 8: Nixon announces his resignation.
August 9: Gerald Ford sworn in as 38th President.
1975
April: ABM: U.S. deploys Safeguard, an ABM system, at Grand Forks Air Force Base, North Dakota.

April 12: United States ends official presence in Cambodia as Marines evacuate diplomats in wake of Khmer Rouge victory.
April 30: Saigon falls to North Vietnamese troops as Americans evacuate.
May 14: Ford orders rescue of cargo ship captured by Cambodian Khmer Rouge (the *Mayaguez* incident).
July 17: U.S.–Soviet astronauts in *Apollo and Soyuz* spacecraft link up in space.
July: Helsinki Accords signed, pledging the United States and Soviet Union to accept European borders, protect human rights, and promote freer transnational trade and cultural exchanges.
December 21: Palestinian terrorists raid OPEC meeting in Vienna, killing three.
1976
May 28: U.S. and Soviet Union sign treaty limiting size and nature of underground nuclear tests.
July 2: Socialist Republic of Vietnam is proclaimed.
July 20: *Viking I* robot spacecraft lands on Mars.
September 9: Mao Zedong dies, setting off succession struggle in China.
November 2: Jimmy Carter elected President.
1977
February 24: Carter announces linkage of foreign aid to human rights.
July 18: Vietnam admitted to U.N.
August 10: United States and Panama agree to transfer Panama Canal to Panamanian control by year 2000.
1978
April 7: Carter announces postponement of neutron bomb production.
May 30: Carter recommends that NATO modernize and increase alliance's military forces. Signals end of detente.
September 17: Camp David Accords signed between Egypt and Israel, with Carter's assistance, setting timetable to end the 30-year state of war between Israel and Egypt in exchange for Israel's return of Sinai to Egypt.
October 16: Polish Cardinal Karol Wojtyla elected pope, the first Slavic pope in history; adopts the name John Paul II. His election shocks and alarms Soviet leaders.
December 15: United States and China announce restoration of full diplomatic relations on January 1, 1979.
1979
January 16: Shah of Iran flees Iran and Ayatollah Khomeini returns from exile to establish fundamentalist Shiite government in Iran on February 26.
March 26: Menachem Begin of Israel and Anwar Sadat of Egypt sign Camp David Peace Treaty in White House ceremony.
May 4: Margaret Thatcher becomes British prime minister.
June: Pope John Paul II makes triumphal visit to Poland, igniting nationalist and religious fervor that highlights the moral bankruptcy of communism.
June 18: SALT II agreement to limit long-range missiles and bombers signed by Carter and Brezhnev.
July: In Nicaraguan Revolution, leftist Sandinista forces overthrow Somoza dictatorship.
October 15: Civil war breaks out in El Salvador.

November 4: Iranian militants seize U.S. Embassy in Teheran, take 63 Americans hostage, demanding return of Shah of Iran, then in United States for medical treatment.
December 4: Carter calls for a major military buildup to counter Soviet military power.
December 20: Soviet army invades Afghanistan. U.S. sanctions against the U.S.S.R. include a grain embargo, decreased scientific and cultural exchanges, a boycott of the 1980 Moscow Olympic Games, and failure to ratify SALT II.
December: NATO announces "Dual-Track" deployment of intermediate-range nuclear forces (INF) in Europe to counter Warsaw Pact SS-20 missiles.

1980

January: Carter Doctrine calls Persian Gulf a U.S. "vital interest."
April 24: U.S. military fails in attempt to rescue Iranian hostages, eight servicemen die in crash.
July: Carter signs Presidential Directive 59 calling for capacity to wage limited and protracted nuclear war.
September 19: Missile explosion in the silo at Titan II Launch Complex 374-7, Van Buren County, Arkansas, kills one airman and injures another.
September 22: Solidarity labor union formed in Poland under leadership of Lech Walesa.
November 4: Ronald Reagan elected president.

1981

January 20: Reagan inaugurated as Iranians release hostages.
January 26: Walesa leads Polish workers in illegal strike for 5-day workweek.
March 30: John Hinkley shoots Reagan in assassination attempt; Reagan has surgery and survives.
April 12: Space shuttle *Columbia* makes maiden voyage, landing with wheels rather than splashing down.
May 13: In St. Peter's Square, Mehmet Ali Agca shoots Pope John Paul II, who survives; assassination attempt is quickly linked to Bulgarian intelligence, and Soviet complicity is strongly suspected.
October 6: Egyptian President Anwar Sadat assassinated.
November: Protest over NATO INF deployment draws 400,000 in Amsterdam.
November 18: Reagan proposes significant reductions in strategic forces, called the "zero option," which would eliminate an entire class of nuclear missiles.
December 13: Martial law imposed in Poland.

1982

April 2: Britain begins 74-day battle with Argentina for control of Falkland Islands.
May 9: Reagan outlines U.S. Strategic Arms Reduction Treaty (START) proposal, to reduce the number of ICBMs and arrive at verifiable agreement to reduce risk of war and number of strategic nuclear weapons on both sides.
June 12: New York march against nuclear arms attracts 800,000 protestors.
June 29: START negotiations open in Geneva.
November 10: Leonid Brezhnev dies.
November 12: Yuri Andropov, former head of the KGB, succeeds Brezhnev as General Secretary of the Soviet Union.

1983

March 23: Reagan proposes SDI (Strategic Defense Initiative, popularly known as Star Wars) to develop technology to intercept enemy missiles.
April 6: Scowcroft Commission Report calls for modernizing U.S. strategic weapons, undertaking negotiations leading to balanced arms control agreements with meaningful, verifiable reductions.
May 24: Congress authorizes MX missile procurement and development.
July 21: Poland lifts martial law.
August 21: Philippine opposition leader Benigno Aquino is assassinated as he returns to Manila from self-imposed exile.
September 1: Korean Air Flight 007 shot down by Soviet jet fighter in Soviet airspace. All 269 aboard are killed.
October 23: Terrorist attack on U.S. Marine headquarters in Beirut, Lebanon, kills 241.
October 25: United States invades Grenada.
November 22: U.S. begins deployment of INF missiles (Pershing II) in West Germany after protracted political fight.
December 28: U.S. withdraws from UNESCO (United Nations Educational, Scientific, and Cultural Organization), charging mismanagement and political bias.
December: Soviet Union suspends START talks.
1984
February 7: American Marines withdraw from Lebanon.
February 9: Yuri Andropov dies.
February 13: Konstantin Chernenko succeeds Andropov as General Secretary of the Soviet Union.
September 20: U.S. Embassy in Beirut bombed, killing 12.
September 24: Reagan proposes to U.N. General Assembly a broad "umbrella" framework for U.S.-U.S.S.R. arms talks.
November 6: Reagan reelected.
November 22: U.S. and U.S.S.R. agree to new negotiations on nuclear and space issues.
1985
March 10: Konstantin Chernenko dies.
March 13: Mikhail Gorbachev succeeds Chernenko as General Secretary.
March 12: Nuclear and Space Talks (NST) open in Geneva, based on START proposals of 1983.
September 9: Reagan announces economic sanctions against South Africa.
September 30: Soviet Union presents START proposal, which accepts for the first time the principle of deep reductions in strategic offensive forces.
November 1: U.S. counters with new START proposal.
November 21: At the Geneva Summit, Reagan and Gorbachev issue joint statement on cooperation in arms reductions with goal of 50 percent reductions of nuclear arms.
1986
January 15: Gorbachev proposes eliminating all nuclear weapons over next 15 years, contingent on United States backing off SDI. Reagan applauds proposal, but won't change position on SDI and supports principle of 50 percent reduction as agreed to in 1985.
January 28: Space shuttle *Challenger* accident kills all aboard**.**
April 11: U.S. launches air strike against Libya in retaliation for Libyan terrorist acts.

April 26: Explosion and fire at Chernobyl nuclear power plant in the Soviet Union spreads radiation over large area.
October 11–12: Gorbachev-Reagan arms talks stall at the Reykjavik Summit in Iceland over Reagan's refusal to limit SDI research and testing to the laboratory although agreement is reached on other details.
November 4: First press revelations of the Iran-Contra scandal, in which Reagan Administration sold arms to Iran and used the proceeds to finance Nicaraguan Contra rebels.
December 22: Peacekeeper ICBM becomes operational.
1987
January 1: Gorbachev addresses Soviet citizens on arms race and threat of war. Reagan addresses the Soviet people via Voice of America saying that the United States and Soviet Union are "closer now than ever before . . . to agreement to reduce nuclear arsenals and have taken major steps toward permanent peace."
May 5: Last Titan ICBM Wing removed from alert status as the MX Peacekeeper enters operation.
August 26: West German Chancellor Helmut Kohl states Germany will destroy its Pershing missiles if United States and U.S.S.R. agree to destroy intermediate-range nuclear missiles.
September 15: Nuclear Risk Reduction Center Agreement signed by the United States and the Soviet Union to promote communication and confidence-building measures.
December 7–10: At the Washington Summit Meeting, Reagan and Gorbachev sign a treaty eliminating INF and agree to work toward completing START agreement, if possible for Moscow meeting in first half of 1988.
1988
January 14: NST resumes in Geneva with the United States and U.S.S.R. working on a joint draft START treaty.
March 15: Oliver North, former National Security Advisor John M. Poindexter, and Iranian-American arms dealer Albert Hakim are indicted on charges of diverting Iranian arms sales proceeds to Nicaraguan Contras.
April 15: Soviet Union agrees to withdraw its forces from Afghanistan by February 15, 1989, after seven years of peace talks.
May 29–June 1: At the Moscow summit, Reagan and Gorbachev reiterate their commitment to concluding the START treaty.
June 28: Gorbachev tells Communist Party leaders that key elements of Communist doctrine are outdated; defends his proposals for change. Party attempts to relax its grip on Soviet society in order to advance Gorbachev's *Glasnost* policies.
July 3: USS *Vincennes* shoots down Iran Air commercial flight, killing 290, after mistaking plane for Iranian F-14 fighter.
August 16: Pro-Solidarity strikes take place in Poland. Demonstrators demand that government grant legal status to the union.
August: War in Angola ends, Cubans withdraw from Angola, South Africa from Namibia.
September 29: Shuttle *Discovery* launched successfully, the first shuttle flight since the *Challenger* disaster.
November 8: George H. W. Bush elected President.

1989
April 5: Poland agrees to legalize Solidarity union.
April 17: "Pro-democracy" demonstrations begin in Beijing.
May: Gorbachev visits Beijing to normalize relations with China.
June 3–4: Chinese army assaults prodemocracy students in Tienanmen Square. Many hundreds of students are killed.
September 22–23: Reciprocal Advance Notice of Major Strategic Exercises Agreement signed as part of the Wyoming Ministerial by the United States and U.S.S.R. to prevent inadvertent conflict arising from provocative military exercises.
September-December: Eastern European nations leave Soviet Bloc, renounce ties to Moscow.
November 9: Berlin Wall is opened as hundreds of thousands of East Germans stream into West Berlin to visit without restrictions.
November 10: Bulgarian president Todor Zhikov resigns after 35 years of hard-line communist power.
December 2–3: Bush proposes the acceleration of START negotiations.
December 20: United States invades Panama.
December 22: The Romanian army overthrows President Nicolae Ceausescu; three days later he and his wife are executed.
1990
February 26: Nicaraguan president Daniel Ortega concedes defeat for his Sandinista Front in popular elections, ending one-party Marxist rule of Nicaragua.
March 18: East German voters opt for German reunification and market-based economy.
May 2: South African government and African National Congress hold first talks in Cape Town on ending white minority rule.
May 30–June 3: Washington**,** D.C., summit meeting between Bush and Gorbachev.
July 24: SAC takes National Emergency Airborne Command Post ("Looking Glass") aircraft off continuous alert duty.
August 2: Iraq invades Kuwait.
September 3: U.S. sends combat aircraft to the Middle East to help defend Saudi Arabian allies from Iraq.
October 3: Two Germanys reunify into one nation.
October 15: South Africa bans racial discrimination in public accommodations only.
November: Treaty of Conventional Armed Forces in Europe cuts East-West land armies.
November 28: Margaret Thatcher resigns as British prime minister.
December 12: Lech Walesa elected President of Poland.
1991
January 16: U.S. and international coalition attack Iraq in Gulf War.
March 3: Iraq accepts cease-fire terms.
July 31: Bush and Gorbachev sign START treaty, pledging to destroy thousands of strategic nuclear weapons.
August 18–21: Coup attempt against Gorbachev fails, but power shifts to Russian president Boris Yeltsin, who mounts a tank to denounce the coup.
September 1: Clark Air Force Base closes in the Philippines after a volcanic eruption.
September 18: All SAC bombers, tankers, and Minuteman II ICBMs removed from alert. Minuteman IIIs, Peacekeepers, and Navy SSBNs remain on alert.

October: Gorbachev and Bush agree to major unilateral cuts in nuclear arms.
December: Commonwealth of Independent States created in the former Soviet Union.
December 25: Gorbachev resigns as Soviet president and transfers control of nuclear arsenal to Yeltsin. U.S. recognizes six independent republics: Armenia, Belorussia, Kazakhstan, Kirghizia, Russia, Ukraine. The Soviet Union no longer exists.

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ASSOCIATED PROPERTY TYPES

This section is intended to assist agencies and individuals in identifying, documenting, and evaluating properties under the *Cold War Sites* context for possible designation as National Historic Landmarks (NHLs). This section is divided into two subsections. The first describes four broad property types that emerged from the historic contexts and properties identified during the course of the study, and the second provides registration requirements based on the NHL criteria as applied to the Cold War context and property types.

TYPES OF COLD WAR PROPERTIES

The Cold War began at the end of World War II as the great powers jockeyed for position and advantage in order to influence and dominate the postwar world. For approximately four and a half decades after the end of the war, the Soviet Union, the United States, and their respective allies confronted each other with strategies and tactics that created an atmosphere of fear and uncertainty, in contrast with the certainty of a "hot" war. Both sides developed, tested, and deployed offensive and defensive missile networks. Each side evolved weapons and delivery systems. Each side challenged and provoked the other and gauged responses to blockades and the proximity of threatening missile sites. The Soviets and the United States each backed opposing sides in proxy wars or became directly involved themselves, as in Vietnam and Afghanistan.

During the course of the Cold War, the United States developed increasingly powerful nuclear weapons and more efficient and accurate delivery systems including aircraft, missiles, and submarines. Testing and production facilities likewise grew in complexity and size. To defend the nation, sophisticated early warning radar stations, surface and embedded missile sites, protected command and control centers, and large flight training centers were created and expanded. In addition, each President of the United States adopted and refined strategies for dealing with the Soviet threat: containment, tactical nuclear weapons, mutual assured destruction, détente, and the Strategic Defense Initiative or "Star Wars," among others. The threats, the defenses, and the strategies all interacted to create an environment of property types constructed to meet the nation's needs.

In this theme study, particular attention has been paid to the property types identified in the enabling legislation for consideration:

(i) Intercontinental ballistic missiles;
(ii) Flight training centers;
(iii) Manufacturing facilities;
(iv) Communications and command centers (such as Cheyenne Mountain, Colorado);
(v) Defensive radar networks (such as the Distant Early Warning Line);
(vi) Nuclear weapons test sites (such as the Nevada test site); and
(vii) Strategic and tactical aircraft

Places associated with research and development will include laboratories. Examples already listed in the National Register of Historic Places or determined eligible for listing include Los Alamos Scientific Laboratory, Los Alamos County, New Mexico; McKinley Climatic Laboratory, Okaloosa County, Florida; and Oak Ridge Historic District, Anderson County, Tennessee. Examples already designated as National Historic Landmarks include Experimental Breeder Reactor No. 1, Idaho National Engineering Lab, Butte County, Idaho; and X-10 Reactor, Oak Ridge National Laboratory, Roane County, Tennessee.

Places associated with production and testing will include test sites, arsenals, and manufacturing facilities. Examples already listed in the National Register of Historic Places or determined eligible for listing include the Fort Hancock and Sandy Hook Proving Ground Historic District, Monmouth County, New Jersey; One-Million-Liter Test Sphere (Horton Test Sphere), Ft. Detrick, Frederick County, Maryland; and Rocky Flats Plant, Jefferson County, Colorado. Examples already designated as National Historic Landmarks include the B Reactor, Richland, Benton County, Washington; Eight-Foot High-Speed Tunnel, NASA Langley Research Center, Hampton, Virginia; and Full-Scale Wind Tunnel, NASA Langley Research Center, Hampton, Virginia.

Places associated with controlling and executing the national defense will include command and control centers, missile launch sites, flight training centers, military posts, depots and storage facilities, and defensive radar networks. Examples already listed in the National Register of Historic Places or determined eligible for listing include D-01 Launch Control Facility/D-09 Launch Facility, Ellsworth AFB (Minuteman Missile National Historic Site), Jackson/Pennington County, South Dakota; Nike Missile Site C47, Porter County, Indiana; Grand Forks Safeguard ABM Installation, Grand Forks County, North Dakota; Site Summit, Anchorage County, Alaska; Tierra Amarilla AFS P-8 Historic District, Rio Arriba County, New Mexico; Titan II ICBM Launch Complex 374-7 Site, Van Buren County, Arkansas; Titan II ICBM Launch Complex 374-5 Site, Faulkner County, Arkansas; and Titan II ICBM Launch Complex 373-5 Site, White County, Arkansas. Examples already designated as National Historic Landmarks include Air Force Facility Missile Site 8 Military Reservation, Pima County, Arizona Fort David A. Russell (Francis E. Warren AFB), Laramie County, Wyoming; Pentagon, Arlington County, Virginia; Space Launch Complex 10, Vandenberg AFB, Santa Barbara County, California; and USS *Nautilus* (submarine), New London County, Connecticut.

Places associated with politics and government will include office buildings, sites of significant public addresses, and residences. Examples already listed in the National Register of Historic Places or determined eligible for listing include the Greenbrier Hotel, Greenbrier County, West Virginia; and Little White House, Monroe County, Florida. Examples already designated as National Historic Landmarks include Eisenhower National Historic Site, Adams County, Pennsylvania; General George C. Marshall House, Loudoun County, Virginia; Greenbrier Hotel, Greenbrier County, West Virginia; Harry S Truman National Historic Site (Harry S Truman Historic District), Jackson County,

Missouri; Kennedy Compound, Barnstable County, Massachusetts; Westminster College Gymnasium, Callaway County, Missouri; White House, Washington, D.C.; and Whitakker Chambers Farm, Carroll County, Maryland.

Preliminary List of Cold War–Related Property Types

Cold War–related property and resource types include buildings, sites, structures, objects, and districts.

Examples of buildings include houses, duplexes, barracks, bachelor officer quarters, apartment buildings, garages, motor pools, sheds, bath houses, latrines, hangars, railroad facilities, manufacturing facilities, warehouses, weapons and ammunition storage facilities, infirmaries, hospitals, clinics, pharmacies, fire stations, laundries, recreational facilities, mess halls, bakeries, restaurants, theaters, armories, offices, guardhouses, radar stations, maintenance shops, carpenter shops, churches, chapels, schools, classroom buildings, laboratories, command and control bunkers, post exchanges, commissaries, communications facilities, water treatment plants, sewage treatment plants, gas stations, incinerators, artillery batteries, Quonset huts, air raid shelters, fallout shelters, post offices, and service clubs.

Examples of sites include archaeological sites, rifle ranges, artillery ranges, missile ranges, and atomic bomb test sites.

Examples of structures include mines, nuclear reactors, runways, launch pads, storage tanks, electric substations, power plants, pump houses, missile silos, railroads, ships and boats, submarines, aircraft, reservoirs, magazines, fences, running tracks, and baseball fields.

Examples of objects include monuments, missiles, and nose cones.

Examples of districts include residential areas, office complexes, missile launch facilities, manufacturing complexes, storage and warehousing complexes, and communication complexes.

Registration Requirements for National Historic Landmark Designation

This section is intended to assist agencies and individuals in evaluating properties related to the Cold War for designation as National Historic Landmarks.

NATIONAL HISTORIC LANDMARKS

National Historic Landmarks relevant to the Cold War must be acknowledged to be among the nation's most significant properties associated with research and development, production and testing, controlling and executing the national defense, or politics and government. The association must have been established between the beginning of the Cold War (approximately at the end of World War II) and December 25, 1991, when Mikhail Gorbachev signed the document officially disbanding the Soviet Union.

The thresholds for designation as a National Historic Landmark include national significance and a high degree of integrity. In addition, each property must be evaluated in comparison with other properties associated with the Cold War to determine their relative significance and integrity.

Any National Historic Landmark designated under this context must have a nationally significant association with one or more of the important topics discussed in the historic context. According to National Historic Landmark regulations (36 CFR 65.4 [a & b]), the quality of national significance can be ascribed to districts, sites, buildings, structures, and objects that possess exceptional value or quality in illustrating or interpreting the heritage of the United States in history, architecture, archeology, engineering, and culture; that possess a high degree of integrity of location, design, setting, materials, workmanship, feeling, and association; and that:
(Criterion 1) are associated with events that have made a significant contribution to, and are identified with, or that outstandingly represent, the broad national patterns of United States history and from which an understanding and appreciation of those patterns may be gained;
(Criterion 2) are associated importantly with the lives of persons nationally significant in the history of the United States;
(Criterion 3) represent some great idea or ideal of the American people;
(Criterion 4) embody the distinguishing characteristics of an architectural type specimen exceptionally valuable for the study of a period, style, or method of construction, or represent a significant, distinctive, and exceptional entity whose components may lack individual distinction;
(Criterion 5) are composed of integral parts of the environment that are not sufficiently significant by reason of historical association or artistic merit to warrant individual recognition but that collectively compose an entity of exceptional historical or artistic significance, or outstandingly commemorate or illustrate a way of life or culture; or
(Criterion 6) have yielded or may be likely to yield information of major scientific importance by revealing new cultures, or by shedding light upon periods of occupation of large areas of the United States. Such sites are those which have yielded, or which may

reasonably be expected to yield, data affecting theories, concepts, and ideas to a major degree.

The following section provides suggestions for criteria and topics with which potential National Historic Landmarks might be associated. Examples of National Historic Landmarks already designated, and their association with the Cold War, also are given.

Criterion 1
In order to be eligible for designation under this criterion, properties must have played a central role in nationally significant events.

Places associated with research and development might include laboratories and facilities designed for the testing of components. Places already designated as National Historic Landmarks that meet this criterion include the Experimental Breeder Reactor No. 1, located at the Idaho National Engineering Lab, Butte County, Idaho, and the X-10 Reactor at Oak Ridge National Laboratory, Roane County, Tennessee. The Experimental Breeder Reactor generated the world's first electricity from atomic energy and the X-10 was the first reactor built for continuous operation and experimentation.

Places associated with production and testing may include reactors, factories, arsenals, test sites, and similar facilities. Places already designated as National Historic Landmarks that meet this criterion include the Eight-Foot High-Speed Tunnel and the Full-Scale Wind Tunnel located at the NASA Langley Research Center in Hampton, Virginia. They were used before and during the Cold War to test scale models and full-scale high-performance aircraft. Space Launch Complex 10, Vandenburg Air Force Base, in Santa Barbara County, California, is also included; it was a Thor missile test site. The B Reactor at the Hanford site in Washington was the world's first production-scale nuclear reactor, constructed in 1943–1944, and produced the plutonium for the world's first nuclear test at the Trinity site and for the atomic bomb exploded over Nagasaki, Japan.

Places and resources associated with controlling and executing the national defense may include command and control centers, missile sites, flight training facilities, ships and aircraft, and military posts. Places and resources already designated as National Historic Landmarks that meet this criterion include the Air Force Facility Missile Site 8 Military Reservation in Pima County, Arizona; Fort David A. Russell (Francis E. Warren Air Force Base) in Laramie County, Wyoming; the Pentagon, in Arlington County, Virginia; Space Launch Complex 10, Vandenburg Air Force Base, in Santa Barbara County, California; and USS *Nautilus*, located in New London County, Connecticut. Site 8, Complex 10, and Warren Air Force Base were missile launch sites. The Pentagon is the nation's central military command facility. *Nautilus* was the world's first nuclear-powered submarine.

Places associated with politics and government may include dwellings, office buildings, and other facilities. Places already designated as National Historic Landmarks that meet this criteria include the Eisenhower National Historic Site near Gettysburg in Adams

County, Pennsylvania; General George C. Marshall House in Leesburg, Loudoun County, Virginia; Westminster College Gymnasium in Callaway County, Missouri; the White House, in Washington, D.C.; and Whittaker Chambers Farm in Carroll County, Maryland. The Eisenhower Site, intended for his retirement home, was also where he met with world leaders including Nikita Khrushchev while president. The Marshall House is where the general lived while secretary of state, when he engineered the Marshall Plan. Whittaker Chambers concealed the infamous "Pumpkin Papers" at his Maryland farm. Former British prime minister Winston Churchill delivered his "Iron Curtain" speech inside the Westminster College Gymnasium in 1946.

Criterion 2
Properties designated as National Historic Landmarks under this criterion must be associated importantly with individuals who played central roles in the Cold War.

People whose associated places are likely to be eligible under this criterion in the area of research and development might include scientists. No such place meeting Criterion 2 has been designated a National Historic Landmark.

People whose associated places are likely to be eligible under this criterion in the area of production and testing are scientists, military figures, and industrialists. No such place meeting Criterion 2 has been designated a National Historic Landmark.

People whose associated places are likely to be eligible under this criterion in the area of controlling and executing the national defense might include political and military leaders. Places already designated as National Historic Landmarks that meet this criteria include the Eisenhower National Historic Site near Gettysburg in Adams County, Pennsylvania; General George C. Marshall House in Leesburg, Loudoun County, Virginia; and the White House, in Washington, D.C. They are associated, respectively, with President Dwight D. Eisenhower, with General and Secretary of State George C. Marshall, and with all of the presidents who held office during the Cold War.

People whose associated places are likely to be eligible under this criterion in the area of politics and government might include political leaders. Places already designated as National Historic Landmarks that meet this criteria include the Eisenhower National Historic Site near Gettysburg in Adams County, Pennsylvania, and the White House, in Washington, D.C. They are associated, respectively, with President Dwight D. Eisenhower and with all of the presidents who held office during the Cold War.

Criterion 3
Properties designated as National Historic Landmarks under this criterion must be associated importantly with national ideas and ideals of the highest order as they relate to the history of the Cold War.

Places that are likely to be eligible under this criterion might include sites that outstandingly represent presidential leadership, in terms both of crisis management and of inspiring the American people, during the Cold War. The place already designated as a

National Historic Landmark that meets this criteria is the White House, in Washington, D.C. It was there that the presidents who held office during the Cold War planned strategies, addressed and inspired the American people, and managed such events as the Cuban Missile Crisis.

Criterion 4

Properties designated as National Historic Landmarks under this criterion must be exceptionally important examples of architecture, landscape architecture, engineering, planning, or construction techniques. Such properties might include government buildings or complexes that were designed by nationally recognized architects or that played vital roles in the Cold War.

Places of surpassing architectural importance associated with research and development might include laboratories and similar facilities. No such place meeting Criterion 4 has been designated a National Historic Landmark.

Places associated with the production of nuclear weapons materials (such as enriched uranium and plutonium) as well as the production and testing of weapons and other resources used during the Cold War might include arsenals, factories, and test sites. No such place meeting Criterion 4 has been designated a National Historic Landmark.

Places and resources associated with controlling and executing the national defense may include command and control centers, missile sites, flight training facilities, and military posts. Places and resources already designated as National Historic Landmarks that may meet this criterion include the Air Force Facility Missile Site 8 Military Reservation in Pima County, Arizona; Fort David A. Russell (Francis E. Warren Air Force Base) in Laramie County, Wyoming; the Pentagon, in Arlington County, Virginia; Space Launch Complex 10, Vandenburg Air Force Base, in Santa Barbara County, California; and USS *Nautilus*, located in New London County, Connecticut. Site 8, Complex 10, and Warren Air Force Base were important (and almost the sole surviving) missile launch sites. The Pentagon is the nation's central military command facility, architecturally significant. *Nautilus* was the world's first nuclear-powered submarine, an exceptionally important example of advanced design.

Criterion 5

Districts that possess extraordinary historic importance under other criteria may be eligible for designation under this criterion as well, while districts whose primary significance is architectural are more likely to be designated under Criterion 4.

No district meeting Criterion 5 has been designated a National Historic Landmark.

Criterion 6

This criterion applies primarily to archeological sites. To be eligible, a site must be shown to have data that will make or have already made major contributions to our understanding of the Cold War by resolving a substantial historical debate or by substantially modifying a major historical concept.

No site meeting Criterion 6 has been designated a National Historic Landmark.

Criteria Exceptions

Ordinarily, cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, and properties that have achieved significance within the past fifty years are not eligible for designation as National Historic Landmarks. If such properties fall within the following categories they may, nevertheless, be found to qualify:

(1) A religious property deriving its primary national significance from architectural or artistic distinction or historical importance;

(2) A building removed from its original location but which is nationally significant primarily for its architectural merit, or for association with persons or events of transcendent importance in the nation's history and the association consequential;

(3) A site of a building or structure no longer standing but the person or event associated with it is of transcendent importance in the nation's history and the association consequential;

(4) A birthplace, grave, or burial site if it is of a historical figure of transcendent national significance and no other appropriate site, building, or structure directly associated with the productive life of that person exists;

(5) A cemetery that derives its primary national significance from graves of persons of transcendent importance, or from an exceptionally distinctive design or an exceptionally significant event;

(6) A reconstructed building or ensemble of buildings of extraordinary national significance when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other buildings or structures with the same association have survived;

(7) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own national historical significance;

(8) A property achieving national significance within the past 50 years if it is of extraordinary national importance.

Several of the Cold War–related sites that have been designated National Historic Landmarks have been designated under criteria exception 8, either specifically or in that they were less than fifty years old when designated. They include Air Force Facility Missile Site 8 Military Reservation in Pima County, Arizona; Fort David A. Russell (Francis E. Warren Air Force Base) in Laramie County, Wyoming; Space Launch Complex 10, Vandenburg Air Force Base, in Santa Barbara County, California; USS *Nautilus*, located in New London County, Connecticut; and Whittaker Chambers Farm in Carroll County, Maryland.

Themes

Several historical themes can be associated with the Cold War, based on the Revised Thematic Framework that the National Park Service adopted in 1994. Derived from the historic context above, the themes include: IV. Shaping the Political Landscape; VI.

Expanding Science and Technology; and VII. Changing Role of the United States in the World Community. These themes and others are outlined in *History in the National Park Service: Themes and Concepts* (1994).

Integrity

A high degree of integrity is essential for a property to be designated a National Historic Landmark related to the Cold War. The property must retain to a high degree the historic fabric that conveys its exceptional historical significance. Seven standards can be used to assess the integrity of a property: location, design, setting, materials, workmanship, feeling, and association.

Location is the exact place where a historic event occurred or where a historic property was constructed. A property associated with the Cold War will meet the standard of location if it is the actual site where something significant happened or if it is the place where a historic structure was built. Properties that have been moved may only be considered for designation if they meet the requirements of Exception 2 above.

Design includes the architectural features that establish the historic form, plan, space, structure, and style of a property. In districts, design reflects the way in which buildings, sites, and structures relate to each other. If essential design elements are lost in the process of rehabilitation or adaptive reuse, the integrity of the property will be reduced.

Setting relates to the environment in which a property is located. A building constructed in a rural location will have greater integrity of setting if the surroundings are still rural than if they have been enveloped by new structures.

Materials are the elements from which a structure is built. National Historic Landmarks need to retain a high degree of original materials, both on the exterior and on the interior.

Workmanship reflects the skill and labor required to construct a historic building or structure. Generally, good workmanship is appropriate to the type of structure, whether a modest dwelling, a missile site, or an architecturally sophisticated public building.

Feeling is a historic property's expression of the time in which it was constructed or used. Modern intrusions, surfaces, and treatments may adversely affect the historic feeling of a property.

Association is the direct link between an important historic event or person and a specific site. A site where a significant event actually occurred or where a creative person did his work will have a strong element of association if the property still conveys its historic character through the existence of other physical features.

Evaluation

Historic properties considered for designation as National Historic Landmarks must be evaluated against other comparable properties also associated with the Cold War. Through such evaluation, those that have the strongest association with the era, the

highest level of significance, and a superior degree of integrity will be the best properties to be considered for designation.

For National Historic Landmark designation, an archeological property should possess the aspects of integrity described above to a high degree. The intactness of archeological deposits must be professionally demonstrated, to determine whether the site has the potential to yield data that may address nationally significant research questions. For further information for evaluating properties for National Historic Landmark designation, see *National Register Bulletin: How to Prepare National Historic Landmark Nominations* (1999).

If properties associated with the Cold War that are eligible for listing in the National Register of Historic Places are rare, those potentially eligible for designation as National Historic Landmarks are even rarer. Few sites would meet the significance criteria, and fewer still would retain the high level of integrity needed for designation. Careful research and evaluation will be needed to determine if, in fact, there are any such sites in existence.

Methodology

The process for identifying properties associated with the *Cold War Sites* historic context began in June 2010 with letters from the historical consultant to State Historic Preservation Officers, Federal Preservation Officers, and Tribal Preservation Officers throughout the United States and its territories. The letters requested assistance in identifying properties associated with the Cold War. At the same time, research in secondary sources was conducted concerning the history of the Cold War, the development of the atomic bomb and the creation of the national nuclear weapons complex, and the research, development, testing, production, and deployment of the offensive and defensive missile systems, defensive radar networks, and military installations that defended the United States during the Cold War.

The Cold War, a global contest, went on for almost half a century. To wage it, the United States not only created an infrastructure of missile and radar sites that were later altered to support advances in technology, it also "retrofitted" older sites and military installations, adapting them for new uses such as training, bomb storage, and missile testing. As a result, while some Cold War sites were newly constructed during the period 1945–1991, others include elements of older facilities. In addition, since the end of the Cold War, many sites have been deactivated, destroyed, or turned over to cities, states, and developers for other uses.

In 1991, Congress directed the Department of Defense to conduct a nationwide survey of Cold War–related resources under its jurisdiction. That effort is ongoing and has resulted in a number of topical surveys, some of which have been released to the public and are listed in the Bibliography. Other surveys have been started but not completed; some have been completed but not released to the public. There are others whose status is uncertain. In addition, some state historic preservation offices have conducted similar surveys of Cold War properties within their states, or have received cultural resource management reports and surveys of Cold War resources at particular installations. In summary, then, there is no single, comprehensive survey of property types associated with the Cold War. Instead, there is a multiplicity of surveys and reports that vary widely in the comprehensiveness of their historic contexts and the degree of detail in their property inventories. Some of the reports and surveys are available on Web sites, while others can be seen only in state or federal agency libraries. Persons who wish to nominate properties to the National Register of Historic Places, or for designation as National Historic Landmarks, may therefore face numerous challenges in conducting research. In addition, properties may have been listed in the National Register or designated as National Historic Landmarks that have clear associations with the Cold War that were not part of the documentation for the nomination or the designation.

National Historic Landmarks

The Secretary of the Interior has designated the following Cold War–related resources as National Historic Landmarks.

Air Force Facility Missile Site 8 Military Reservation, Pima County, Arizona (designated on April 19, 1994)
This is the only remaining Titan II ICBM site, out of fifty-four that were operational between 1963 and 1987 during the Cold War. The site includes the liquid-fueled missile launch facilities and has retained or reacquired all of the above- and below-ground command and control components as well as the missile silo. Under provisions of the SALT I treaty, all of the Titan II missile sites except this one were destroyed over a five-year period beginning in 1982. The site is today the Titan Missile Museum and is open to the public.

B Reactor, Richland, Benton County, Washington (designated on August 19, 2008)
The B Reactor at the Hanford site in Washington was the world's first production-scale nuclear reactor. It was constructed in 1943–1944 for the Manhattan Project and it produced the plutonium for the world's first nuclear test at the Trinity site near Alamogordo, New Mexico, on July 16, 1945, and for the atomic bomb exploded over Nagasaki, Japan, on August 9, 1945. The reactor served as the model for other nuclear reactors designed and constructed during the early years of the Cold War. The reactor is open for guided tours on specified dates between April and September.

Eight-Foot High-Speed Tunnel, NASA Langley Research Center, Hampton, Virginia (designated on October 3, 1985)
This wind tunnel was completed in 1936 under authority of the National Advisory Committee for Aeronautics, to test scale models of aircraft as well as full-size aircraft parts. It was the most vibration-free wind tunnel in the world at the time of its construction. A 16,000-horsepower electric fan produced an airstream flowing at Mach .9, almost the speed of sound. The tunnel was used to test and perfect high-performance aircraft during World War II and the Cold War. It is now used for storage and is not open to the public.

Eisenhower National Historic Site, Adams County, Pennsylvania (designated on May 23, 1966)
Dwight D. Eisenhower and his wife, Mamie, bought this farm near Gettysburg in 1950 as a retirement home. Service as NATO commander and president delayed their retirement plans, however. After Eisenhower's 1955 heart attack, the farm served as the temporary White House as he recuperated. Throughout his presidency, he escaped to the farm whenever he could and met with staff and world leaders there, including Nikita Khrushchev during the Cold War. The Eisenhowers donated the site to the National Park Service in 1967. It has been open to the public since 1980.

Experimental Breeder Reactor No. 1, Idaho National Engineering Lab, Butte County, Idaho (designated December 21, 1965)

This facility generated the world's first electricity from atomic energy. Construction began in 1949 and the reactor was installed early in 1951. On December 20, 1951, experimenters harvested atomic energy for the first time and the next day the reactor produced enough electricity to light the facility. This was also the world's first breeder reactor and the first to use plutonium as a fuel. The reactor is open to the public between Memorial Day and Labor Day.

Fort David A. Russell (Francis E. Warren Air Force Base), Laramie County, Wyoming (designated on May 15, 1975)
Francis E. Warren Air Force Base evolved from a frontier infantry and cavalry outpost in the 19th century to a strategic missile site during the Cold War. In 1960, Warren became the first fully operational Atlas ICBM squadron, and two years later, Minuteman I replaced the Atlas missiles there. Minuteman III missiles replaced the earlier models in 1975, and Peacekeepers arrived in 1986. Although the ending of the Cold War reduced the numbers of strategic missiles in the nation's arsenal, Warren remains the largest strategic missile site in the United States. The Warren ICBM/Heritage Museum is open to the public.

Fort Hancock and the Sandy Hook Proving Ground Historic District, Monmouth County, New Jersey (designated on December 17, 1982)
This historic district contains a variety of resources, not all of which are related to the Cold War. The district played a significant role in the development of advanced weaponry and radar, helped guard New York City and the harbor from 1895 to 1974, and is also the site of the Spermacetti Cove No. 2 Life-Saving Station, one of the earliest such stations established by the federal government.

Full-Scale Wind Tunnel, NASA Langley Research Center, Hampton, Virginia (designated on October 3, 1985)
The Full-Scale Wind Tunnel was designed to test actual aircraft, in contrast with the nearby Eight-Foot High-Speed Tunnel, which tested scale models and components. Completed in 1931, the tunnel was 440 feet long, 230 feet wide, and 95 feet tall. Aircraft were tested to calculate the air-drag penalties of exposed struts, rivet heads, wheels, and other components before, during, and after World War II. Today Old Dominion University uses the tunnel to improve the design of aircraft, automobiles, and trucks.

General George C. Marshall House, Loudoun County, Virginia (designated on June 19, 1996)
Known as Dodona Manor, this is the only house that George C. Marshall ever owned. His wife purchased it in 1941 to serve first as a weekend retreat and then as a retirement home after Marshall served as army chief of staff during World War II. Immediately after retiring from the Army, however, Marshall received a call at the house from President Harry S Truman asking him to serve as Secretary of State. Marshall is best known, in terms of his postwar career, as the architect of the European Recovery Program, called the Marshall Plan. Dodona Manor has been restored—many of the contributions toward its preservation came from grateful Europeans—and is open to the public.

Harry S Truman National Historic Site (Harry S Truman Historic District), Independence, Jackson County, Missouri (designated on November 11, 1971)
The Truman house at 219 North Delaware Street, Truman's home from 1919 until his death in 1972), is the core of the site and district. Truman served as President of the United States from the death of President Franklin D. Roosevelt in 1945 until 1953—the earliest years of the Cold War—and gave final authorization for the first and only uses of atomic weapons in warfare. The house is open to the public.

Kennedy Compound, Barnstable County, Massachusetts (designated on November 28, 1972)
The Kennedy Compound contains the three summer homes of President John F. Kennedy, Attorney General Robert F. Kennedy, and their father, Ambassador Joseph P. Kennedy. During John F. Kennedy's tenure as president, and while Robert F. Kennedy served as attorney general and his brother's principal advisor, several of the Cold War's most dangerous moments occurred, especially the Bay of Pigs invasion and the Cuban Missile Crisis. The houses are not open to the public.

Pentagon, Arlington County, Virginia (designated on October 5, 1992)
Constructed in 1941–1942 to house the rapidly expanding War Department at the beginning of World War II, the Pentagon became the best-known symbol of American military might during the Cold War years. Constructed with 6,240,000 square feet of office space, it was then the largest such building in the world. Here the Secretary of Defense and the Joint Chiefs of Staff have their offices.

Space Launch Complex 10, Vandenburg Air Force Base, Santa Barbara County, California (designated on June 23, 1986)
The launch complex was constructed in 1958 to test Thor ballistic missiles and train their military operators. From 1965 to 1980, the site supported early launches of the Defense Meteorological Satellite Program, using launch vehicles based on the Thor missile design.

USS *Nautilus*, New London County, Connecticut (designated on May 20, 1982)
President Harry S Truman laid the keel of *Nautilus*, the world's first nuclear-powered submarine, on June 14, 1952, at Groton, Connecticut. *Nautilus* was launched on January 21, 1954, and got under way on nuclear power on January 17, 1955. On August 3, 1958, the submarine became the first vessel to sail under the North Pole. *Nautilus* was decommissioned on March 3, 1980. The submarine has been open to the public since April 11, 1986.

Westminster College Gymnasium, Callaway County, Missouri (designated on May 23, 1968)
In October 1945, President Harry S Truman invited former British prime minister Winston Churchill to give several lectures at Westminster College in Truman's home state of Missouri. Churchill traveled to the United States in February 1946, having planned a Florida vacation, then went by train from Washington to Missouri with Truman. On March 5, 1946, in the college gymnasium, Churchill delivered his speech, which was broadcast by radio throughout the United States. He had entitled the address "The

Sinews of Peace," but a passage in which he proclaimed in reference to Soviet influence in Europe that "an iron curtain has descended across the Continent," it became known as the "Iron Curtain" speech.

White House, Washington, D.C. (designated on December 19, 1960)
Presidents Harry S Truman, Dwight D. Eisenhower, John F. Kennedy, Lyndon B. Johnson, Richard M. Nixon, Gerald R. Ford, Ronald Reagan, and George H. W. Bush directed American political and military strategy while in residence at the White House. There, also, they met with Soviet leaders, negotiated treaties and agreements, and worked their way through such events as the Cuban Missile Crisis. The Oval Office was the scene of many important Cold War–related addresses by several presidents.

Whittaker Chambers Farm, Carroll County, Maryland (designated on May 17, 1988)
Also known as Pipe Creek Farm, this was the home of the former Communist who played a key role in the conviction for perjury of Alger Hiss, a State Department official who attempted to pass secrets to the Soviet Union. Most famously, Hiss gave Chambers documents on a roll of microfilm that Chambers concealed in a hollowed-out pumpkin in the pumpkin patch on the farm; the documents became known as "The Pumpkin Papers" when Chambers turned them over to the House Un-American Activities Committee in 1948. The farm is private property, not open to the public.

X-10 Reactor, Oak Ridge National Laboratory, Roane County, Tennessee (designated on December 21, 1965)
Constructed in 1942–1943, the X-10 was the first nuclear reactor built for continuous operation and experimentation. It went into operation on November 4, 1943, and used neutrons emitted in the fission of uranium-235 to convert uranium-238 into a new element, plutonium-239. The reactor supplied the first significant amounts of plutonium to the Los Alamos laboratory. After the war ended, X-10 became the world's first facility to produce radioactive isotopes for peacetime use, including radioisotopes to treat cancer and for other medical uses.

National Historic Landmarks Study List

Based on research conducted for this theme study, these properties appear to have strong associations with nationally significant topics within the Cold War context, although their current documentation does not discuss the Cold War in detail. Further study of the Cold War–related sites inventory as it becomes available will likely uncover additional resources potentially eligible for designation.

Greenbrier Hotel, Greenbrier County, West Virginia (nuclear-war shelter for Congress, 1950s and later); designated a National Historic Landmark on June 21, 1990.

Harry S Truman National Historic Site, Jackson County, Missouri (Truman Home before, during, and after presidency, early 1950s); listed in the National Register of Historic Places on May 31, 1985.

Kennedy Compound, Barnstable County, Massachusetts (John F. Kennedy Summer White House, 1960s); listed in the National Register of Historic Places on November 28, 1972.

Little White House, Monroe County, Florida (Truman Summer White House, 1946-1949); listed in the National Register of Historic Places on February 12, 1974.

Savannah, Newport News City, Virginia (nuclear-powered merchant marine vessel associated with the federal "Atoms for Peace" program, late 1950s); designated as a National Historic Landmark on July 1, 1991.

Bibliography

This is a bibliography of secondary literature sources specifically related to inventories of Cold War–related sites, chosen in order to provide context for evaluating the relative significance of such sites and resources.

The first section lists general works that give overviews of the history of the Cold War; the evolution of the nuclear weapons complex, including the creation, manufacture, and testing of those weapons; and the evolution of the aircraft and ballistic missile systems designed to deliver nuclear weapons to their targets, as well as the missile and radar systems designed to defend the United States.

Inventories of Cold War–related sites in the United States are presented in the second section. The inventories were compiled as part of a nationwide survey of sites primarily related to national defense, training, radar, missile systems, Air Force bases, research and development, and Navy guided-missile and communications systems.

The third section lists selected cultural resource management site reports and publications on related subjects. These reports typically contain overviews of the Cold War era in which the facility was constructed; historic contexts specific to each facility; and inventories of the buildings, sites, structures, objects, and districts related to the facility.

The bibliography and inventory are necessarily works in progress and can never be "final" because new studies and inventories are always forthcoming. Almost daily, new ones are completed, published, and posted to or removed from Web sites. The following listings include works available in one form or another as of early in 2011. Researchers are encouraged to search the Internet and to contact the relevant service branches, federal and state preservation offices, and military installations.

GENERAL

This is not intended to be a comprehensive list but rather a guide to selected works that provide a broad context for the Cold War era with regard to its history, weapons, and defense and delivery systems.

Berhow, Mark. *U.S. Strategic and Defensive Missile Systems, 1950–2004*. Oxford, UK: Osprey Publishing, 2005. The fixed-launch-site strategic and defensive missile systems of the United States are discussed and illustrated in this book.

Borstelman, Thomas. *The Cold War and the Color Line: American Race Relations in the Global Arena*. Cambridge, MA: Harvard University Press, 2003. The author describes how the Civil Rights Movement and the Cold War affected each other not only in the United States but on the global stage as the United States and the Soviet Union competed for influence in the nonwhite nations of the Middle East, Africa, and Asia. Juxtaposing related events at home and abroad, Borstelman illustrates the clash between American ideals of freedom with the lack of their application in the United States.

Boyer, Paul. *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age*. Chapel Hill: University of North Carolina Press, 1995. The author discusses the diverse reactions to the emerging nuclear era between 1945 and 1950. Specifically, he describes how the Bomb affected moral, religious, literary, scientific, and philosophical beliefs in a short period of time.

Bundy, McGeorge. *Danger and Survival: Choices about the Bomb in the First Fifty Years*. New York: Random House, 1988. Bundy, who served under presidents Kennedy and Johnson as a national security advisor, describes the choices that United States and Soviet leaders made regarding the development and use of atomic weapons. Writing during the last stages of the Cold War, Bundy was critical of President Ronald Reagan's "Star Wars" defensive system proposals.

Craig, Campbell, and Fredrik Logevall. *America's Cold War: The Politics of Insecurity*. Cambridge, MA: Harvard University Press, 2009. This study explores the connection between the Cold War and American domestic politics and economics. The authors argue that the Cold War lasted as long as it did in part because of American insecurities that resulted in the exaggeration of external threats, which in turn lead to misadventures that were extremely costly in terms of treasure and lives.

Gaddis, John Lewis. *The Cold War: A New History*. New York, NY: The Penguin Press, 2005. Gaddis, an eminent scholar of the Cold War, untangles the complex global history of the era in this concise study. The book provides a broad overview of the Cold War and the roles of American and Soviet leaders in its crucial events from the beginnings to the end.

Herkin, Greg. *The Winning Weapon: The Atomic Bomb in the Cold War, 1945–1950*. New York: Vintage Books, 1982. The author discusses American policies toward the development and use of nuclear weapons from the last months of World War II to the decision to build the hydrogen bomb. He contends that nuclear weapons failed as bargaining chips in diplomacy and led to the arms race between the United States and the Soviet Union.

Herring, George. *America's Longest War: The United States and Vietnam, 1950–1975*. 4th ed. New York: McGraw-Hill, 2001. The history of America's involvement in Vietnam, including its military, diplomatic, and political aspects, is the topic of this book.

Kwon, Heonik. *The Other Cold War*. New York: Columbia University Press, 2010. According to the author, the global struggle known as the Cold War was not only a conflict between the two superpowers but also a simultaneous and slow dissolution of a complex political and social order that resulted in vicious civil wars that frequently had less to do with the global conflict than with local and regional changes.

LaFeber, Walter. *America, Russia and the Cold War, 1945–96*. New York: McGraw Hill, 1996. The author focuses on diplomacy between the United States and the Soviet Union and its role in the causes and consequences of the Cold War.

Leffler, Melvyn. *A Preponderance of Power: National Security, the Truman Administration and the Cold War*. Stanford, CA: Stanford University Press, 1993. In this study, the author traces the development of national security policy during the Truman administration as the president and his advisors sought to use American power to create a global environment compatible with American interests. They also endeavored to counter the serious threats posed by Soviet forces in Eastern Europe and elsewhere in part through such initiatives as the Marshall Plan, the promotion of economic recovery in Japan, and the commitment of troops to defend South Korea.

———————, and Odd Arne Westad, eds. *The Cambridge History of the Cold War*. 3 vols. Cambridge, UK: Cambridge University Press, 2010. This expansive history is international in scope and presents the global dynamics of the Cold War in the evolving geopolitical, ideological, economic, and socio-political environment of the twentieth century. It discusses demography, consumption, women, youth, science, technology, ethnicity, and race as they relate to the Cold War.

Leonard, Barry, ed. *History of Strategic Air and Ballistic Missile Defense, 1945–1972*. 2 vols. Washington, DC: Center of Military History, United States Army, 2005. This work analyzes the strategies that the United States and the Soviet Union each employed to defend against nuclear missile and aircraft attacks, and the missile and air defense systems that each side developed during the Cold War through 1972.

Loeber, Charles R. *Building the Bombs: A History of the Nuclear Weapons Complex.* 2nd ed. Albuquerque, NM: Sandia National Laboratories, 2005. This work gives a site-by-site history of the development of the nuclear weapons complex, including the research, testing, and manufacturing processes.

Logevall, Fredrik, and Andrew Preston, eds. *Nixon in the World: American Foreign Relations, 1969–1977*. New York: Oxford University Press, 2008. The authors describe the effects of hysterical anticommunism and American military actions overseas, including the deaths, financial costs, and destabilized nations that were the consequences of the Cold War. The policies of the era resulted in the limiting of political debate, the authors argue, while placing the United States in the position of supporting repressive regimes.

Matlock, Jack. *Reagan and Gorbachev: How the Cold War Ended*. New York: Random House, 2005. The author, formerly an advisor to Reagan on Soviet and European affairs, offers an insider's view of the end of the Cold War and the relationship between Reagan and Gorbachev. He concludes that Reagan's surprising flexibility and Gorbachev's essential humanity contributed largely to the dissolution of the Soviet Union and the conclusion of the Cold War.

May, Elaine Tyler. *Homeward Bound: American Families in the Cold War Era*. New York: Basic Books, 2008. The 1950s is typically viewed as a period of idealized domestic tranquility, but the fears and tensions of the Cold War cast a shadow over this supposedly happy scene. The author argues that the withdrawal into the security of the home was a response to the era's political insecurities and that the conservative social norms of the time were related to Cold War policies.

May, Ernest R., and Philip D. Zelikow, eds. *The Kennedy Tapes: Inside the White House during the Cuban Missile Crisis*. Cambridge, MA: Harvard University Press, 1997. In the summer of 1962, President Kennedy had a taping system installed in the Oval Office and Cabinet Room. During the Cuban Missile Crisis that October, Kennedy secretly recorded the many meetings and conversations that occurred as the crisis evolved. The editors present a fascinating inside view of what may have been the most dangerous event of the Cold War, augmenting transcripts of the tapes with Soviet documents and the memoirs and notes of those involved.

Naftali, Timothy, and Aleksandr Fursenko. *"One Hell of a Gamble": Khrushchev, Castro and Kennedy, 1958–1964*. New York: Norton, 1977. The authors, one of whom is an American scholar and the other a Russian, utilize recently opened Soviet archives to illustrate the inner workings of the Politburo during the Cuban Missile Crisis. The result is the story of the crisis from the Soviet viewpoint.

Neufeld, Jacob. *The Development of Ballistic Missiles in the United States Air Force, 1945–1960*. Washington, D.C.: Office of Air Force History, 1990. This book is in print, and is also available on line at the Air Force Historical Studies Office Web site, http://www.airforcehistory.hq.af.mil/Publications/fulltext/ballistic_missiles_in_the_usaf.pdf. Neufeld focuses on the first generation of ballistic missiles (Atlas, Titan, and Thor), and describes the difficult technological competition with the Soviets. The Air Force also had to overcome interservice rivalries, budgetary constraints, administrative complications, and engineering problems. This first series of long-range strategic missiles was the forerunner of the modern U.S. nuclear arsenal, especially Minuteman and cruise missiles.

Sarotte, Mary. *1989: The Struggle to Create Post–Cold War Europe*. Princeton, NJ: Princeton University Press, 2009. The author argues that the fall of the Berlin Wall and the reunification of Germany basically reestablished a new version of the Cold War status quo—NATO versus post-Soviet Russia instead of the West versus the Soviet Union. She credits West German chancellor Helmut Kohl as the man who outmaneuvered other leaders to annex East Germany through adroit diplomacy and offers of aid to the collapsing Soviet economy.

Schaffel, Kenneth. *The Emerging Shield: The Air Force and the Evolution of Continental Air Defense, 1945–1960*. Washington, DC: U.S. Air Force Office of Air Force History, 1991. This book is in print, and is also available on line at the Air Force Historical Studies Office Web site, http://www.airforcehistory.hq.af.mil/Publications/Annotations/schaffelemerging.htm. It

traces the development of defenses to counter bomber attacks, the primary nuclear weapons delivery system before the advent of ICBMs in the 1960s. By the end of the 1950s, the defenses included an early warning radar network stretching across Alaska and Canada, as well as radar picket ships, ocean platforms, and ground observers. Defensive weapons included antiaircraft artillery and air-to-air and surface-to-air missiles. A computer-driven command and control system coordinated the defensive array. Over the decade, the defensive network, weapons, and control system evolved to meet new Soviet challenges until ICBMs became the principal threat.

Schrecker, Ellen. *Many Are the Crimes: McCarthyism in America*. Boston, MA: Little Brown, 1998. This study expands the concept of McCarthyism beyond merely the activities of Senator Joseph McCarthy to include various professional anticommunists who maneuvered federal officials into adopting their crusade to confound dissent with disloyalty.

Suri, Jeremi. *Power and Protest: Global Revolution and the Rise of Détente*. Cambridge, MA: Harvard University Press, 2005. Détente has been considered a strategic Western approach to Soviet power--agreeing to maintain the status quo to avoid instability. The author contends that social unrest in capitalist nations such as the United States and France as well as in communist countries such as China and Russia resulted in leaders everywhere withdrawing or withholding political power from the public, or applying the principles of détente internally as well as internationally.

Titus, A. Costandina. *Bombs in the Backyard: Atomic Testing and American Politics*. Rev. ed. Reno: University of Nevada Press, 2001. This volume, which first appeared in 1986 and has been updated, focuses primarily on the Nevada Test Site and vicinity. It examines the effects of nuclear testing (especially radiation) affected the health of not only military personnel but also civilians and livestock downwind of the test site. The book also examines how the government, specifically the Pentagon, the Atomic Energy Commission, and the courts failed to inform, protect, and compensate the victims of atomic testing.

Warnock, A. Timothy, Daniel L. Haulman, Forrest L. Marion, and Jeffrey P. Sahaida (Frederick J. Shaw, ed.) *Locating Air Force Base Sites: History's Legacy*. Washington, DC: Air Force History and Museum Program, 2004. Available as a PDF file at the WorldCat Web site, http://www.worldcat.org/title/locating-air-force-base-sites-historys-legacy/oclc/318682361?title=&detail=&page=frame&url=http%3A%2F%2Fhandle.dtic.mil%2F100.2%2FADA476351%26checksum%3Decd08bea0186ca2fdb745dfdbb5738c7&linktype=digitalObject. This work consists of a historic context tracing the history of Air Force bases from 1907 to 2003 and documents their changes in function over time. The historic context is divided into four chronological chapters (1907–1947; 1947–1960; 1961–1987; 1988–2003), with the middle two devoted to the Cold War era.

Westad, Odd Arne. *The Global Cold War*. Cambridge, UK: Cambridge University Press, 2007. The author shows how the global Cold War of the twentieth century laid the foundations for most of the next century's international conflicts, including the "war on

terror." Because the United States and the Soviet Union alike practiced interventionism in the Third World, they produced resentments that constitute the true legacy of the Cold War.

DEPARTMENT OF DEFENSE COLD WAR RESOURCES INVENTORY

Most of the service-wide inventories and contexts listed below were compiled under the auspices of the Department of Defense Legacy Resource Management Program, which the Defense Appropriations Act of 1991 established. One of the program's nine task areas is the Cold War Project, which seeks to "inventory, protect, and conserve [DoD's] physical and literary property and relics" associated with the Cold War. Some of the inventories and contexts were compiled as special projects by other federal agencies, or under the mandates of the National Historic Preservation Act of 1966. Documents devoted to guidance concerning resource management and recordation are also included. Some of these reports can be found on the Internet, while others are in the files of federal or state historic preservation offices, or at the respective bases. Some may be found in libraries listed on the WorldCat Web site, http://www.worldcat.org, or for sale by the publishers, Amazon, or other book dealers.

Since the terrorist attacks of September 11, 2001, however, the Department of Defense and the armed services have reconsidered whether all of the information in these inventories should be publicly available. In some cases, it is likely that the researcher will find that inventories formerly available on the Internet are no longer available, or that certain sections or chapters have been redacted.

Best, Brooke V., Katherine Grandine, and Stacie Y. Webb. *Navy Cold War Communication Context: Resources Associated with the Navy's Communication Program, 1946–1989*. Frederick, MD: R. Christopher Goodwin and Associates, 1997. Available as a PDF file at the Naval Facilities Engineering Command Web site, www.portal.navfac.navy.mil. The study contains chapters on methodology, the history of the Navy's role in the Cold War communication program between 1946 and 1989, and property types associated with the Navy's shore-based communication program. It also includes a bibliography and an inventory of 37 sites associated with the communication program during the Cold War. Each entry includes the site name and location as well as a brief narrative history.

Best, Brooke V., Eliza H. Edwards, and Leo Hirrel. *Navy Cold War Guided Missile Context: Resources Associated with the Navy's Guided Missile Program, 1946–1989*. Frederick, MD: R. Christopher Goodwin & Associates, Inc., 1995. Available as a PDF file at the Naval Facilities Engineering Command Web site, www.portal.navfac.navy.mil. The context contains sections on methodology, a chronological overview, theme studies, property types, evaluation criteria, and treatment options. The study also contains a bibliography and several appendices, including an inventory of 39 installations associated with the Navy's Cold War guided-missile program, arranged alphabetically by state. Each entry gives the installation name and location, the period of significance, relevant themes, and a narrative overview of the installation and its functions.

Department of Defense Legacy Cold War Project. *Coming in from the Cold: Military Heritage in the Cold War*. Washington, DC: United States Government Printing Office, 1994. Available for download on the U.S. Military Liaison Mission Association Web site, www.usmlm.org/home/coldwar/coldwar.html. This report discusses the formation of the Cold War Task Area and its progress in fulfilling the mandates of the Defense Appropriations Act of 1991 for inventorying DoD Cold War sites and resources. At the end of the document is a useful time line of the Cold War through 1991.

————. *Interim Guidance: Treatment of Cold War Historic Properties for U.S. Air Force Installations*. Washington, DC: United States Government Printing Office, 1993. Available as a Word document on the Air Force Center for Engineering and the Environment Web site, http://www.afcee.af.mil/shared/media/document/AFD-070828-060.doc. This publication gives guidance for the treatment and preservation of Cold War properties, and includes a preliminary list of property types.

Gaither, Steve. *Looking Between Trinity and the Wall: Army Materiel Command Cold War Material Culture within the Continental United States, 1945–1989.* Plano, TX: Geo-Marine, Inc., 1997. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; also available as a PDF file at the Scribd Web site, http://www.scribd.com/doc/40171141/Trinity-and-the-Wall. The study contains a Cold War historic context, a history of the Army Materiel Command and its predecessors, and the themes associated with the AMC during the Cold War. An appendix lists 313 Army Materiel Command–related sites, including housing areas, command centers, depots, arsenals, and manufacturing facilities.

Gregory, Carrie J., and Martyn D. Tagg. *Recording the Cold War: Identifying and Collecting Cold War Resources Data on Military Installations*. Tucson, AZ: Statistical Research, Inc., 2008. Available as a PDF file at the DoD Environment, Safety and Occupational Health Network and Information Exchange Web site, http://www.denix.osd.mil/cr/upload/07-285_Final.pdf. This is a Department of Defense Cold War Legacy project (07-285) to assist in identifying facilities and documentation, creating a systematic approach to compiling and analyzing data, and assessing costs for each project. For the purposes of the study, four Air Force bases were identified and analyzed: Davis-Monthan AFB, AZ; Hill AFB, UT; Kirtland AFB, NM; and Vandenberg AFB, CA. The introduction offers a useful history of the Legacy program and includes a list of contexts and inventories that had been completed by 2008.

Hoffecker, John F., Mandy Whorton, and Casey R. Buechler. *Cold War Historic Properties of the 21st Space Wing, Air Force Space Command.* Pensacola, FL: Cold War Workshop, Eglin Air Force Base, 1996. Available as a PDF file on the Department of Energy Scientific and Technical Information Web site at http://www.osti.gov/bridge/purl.cover.jsp;jsessionid=1B6E0E3B09E22469AD7C1339DD237CFE?purl=/211543-ifJ7vE/webviewable/. This brief (15-page) report describes generally the historic contexts and facilities at several air stations and bases: Cape Cod

AS (MA), Cavalier AS (ND), Clear AS (AK), Eldorado AS (TX), Peterson AFB (CO), and Thule AB (Greenland).

Isemann, James L. "To Detect, To Deter, To Defend: The Distant Early Warning (DEW) Line and Early Cold War Defense Policy, 1953–1957." Ph.D. Diss. Manhattan, KS: Kansas State University, 2009. Available as a PDF file at the Kansas State University Web site, www.krex.k-state.edu/dspace/bitstream/2097/2161/1/JamesIsemann2009.pdf. This dissertation discusses the planning and construction of the system, which was designed ostensibly to protect the civilian population but more importantly to safeguard the Strategic Air Command's retaliatory-strike bombers. The chapter on construction contains descriptions, plans, and photographs of some of the main, auxiliary, and intermediate DEW Line stations.

Kuranda, Kathryn M., Katherine E. Grandine, Brian Cleven, Thomas W. Davis, and Nathaniel Patch. *Historic Context for Army Fixed-Wing Airfields, 1903–1989*. Frederick, MD: R. Christopher Goodwin & Associates, 2002. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; also available as a PDF file at the DoD Environment, Safety and Occupational Health Network and Information Exchange Web site, http://www.denix.osd.mil/cr/upload/Army-Airfield-Historic-Context.pdf. The study contains a historic context for Army aviation from the earliest days through the end of the Cold War, focusing on changes in aircraft technology and airfield development. Selected property types at various bases are described and their integrity is discussed. Property types include landing fields, landing aids, radio buildings, operations buildings, flight control towers, fire stations, hangars and maintenance buildings, paint shops and storage buildings, general storage buildings, parachute buildings, aerial photography buildings, aircraft fuel storage facilities, and wash racks. Five case studies are offered in an appendix (Aberdeen Proving Ground, MD; Fort Hood, TX; Fort Rucker, AL; Fort Sill, OK; and Fort Stewart, GA), and another appendix lists sixty-five currently (2001) active Army airfields nationwide.

Kuranda, Kathryn M., Katherine E. Grandine, and Deborah K. Cannan. *Support and Utility Structures and Facilities (1917–1946): Overview, Inventory, and Treatment Plan*. Frederick, MD: R. Christopher Goodwin & Associates, 1995. Prepared for the Department of the Navy. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. This study describes and inventories structures and facilities at both Navy and Army installations. Although most of the resources predate the Cold War, their use continued into the Cold War era.

Lavin, Mary K. *Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military-Industrial Historic Properties*. Fairfax, VA: Horne Engineering, 1998. Available as a PDF file at the Defense Technical Information Center Web site, http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA353034&Location=U2&doc=GetTRDoc.pdf. The study contains a historic context of the Army's military-industrial history during the Cold War to provide the overview necessary to identify, evaluate, and manage the Army's Cold War–related resources. Property types and facility types are identified, a list of Army

posts is provided, and two time lines note the changes in the Army's organization and major events and Army activities during the Cold War.

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, Virginia, and available at the ACC library as a PDF file containing three volumes; not available on line. The first volume contains a historic context of the Cold War and its effects on the United States, especially on the nation's air defense system. The second volume contains baseline inventories of Cold War material culture at twenty-seven Air Force bases (*see also* Karen J. Weitze, *Cold War Infrastructure for Air Defense: The Fighter and Command Missions* below). The bases are: Barksdale AFB, LA; Beale AFB, CA; Cannon AFB, NM; Castle AFB, CA; Davis-Monthan AFB, AZ; Dyess AFB, TX; Ellsworth AFB and Badlands AFR, SD; Fairchild AFB, WA; Griffiss AFB, NY; Holloman AFB and Melrose AFR, NM; Homestead AFB, FL; Howard AFB and Balboa AFR, Panama; K. I. Sawyer AFB, MI; Langley AFB, VA; Little Rock AFB, AK; Loring AFB, ME; MacDill AFB and Avon Park AFR, FL; McConnell AFB, KS; Minot AFB, ND; Moody AFB and Grand Bay AFR, GA; Mountain Home AFB and Saylor Creek AFR, ID; Nellis AFB, NV, and Cuddeback AFR, CA; Offutt AFB, NB; Pope AFB, NC; Seymour Johnson AFB and Dare County AFR, NC; Shaw AFB and Poinsett AFR, SC; Whiteman AFB, MO. The third volume contains a summary report and final programmatic recommendations relating to the resources on each base that are potentially eligible for nomination to the National Register of Historic Places.

Lonnquest, John C., and David F. Winkler. *To Defend and Deter: The Legacy of the United States Cold War Missile System*. Washington, DC: Department of Defense, Legacy Resource Management Program Cold War Project, 1996. Available as a PDF file at the WorldCat Web site, http://www.worldcat.org/title/to-defend-and-deter-the-legacy-of-the-united-states-cold-war-missile-program/oclc/227865728?title=&detail=&page=frame&url=http%3A%2F%2Fhandle.dtic.mil%2F100.2%2FADA337549%26checksum%3D541e88d6c79780fda5a3ea237e209978&linktype=digitalObject. The study contains a history of the Cold War missile system, descriptions of the various defensive and ballistic missile systems, a history of missile development and deployment sites, a chronology, a bibliography, and a state-by-state inventory of intercontinental ballistic missile and air defense missile sites. Each inventory entry includes the site name, missile type, installation, site location, military service branch, dates of active service, and current status (as of 1996).

Louis Berger Group, Inc. *Historic Context Statement: The United States Navy in the Cold War*. Draft. Morristown, NJ: Louis Berger Group, Inc., 2009. Available as a PDF file at the Naval Facilities Engineering Command Web site, www.portal.navfac.navy.mil. This report was compiled in compliance with provisions of the National Historic Preservation Act of 1966 and contains a two-part historic context. The first section is an overview of the Cold War and the role of the Chief of Naval Operations in the Navy's

approach to countering the Soviet threats. The second section focuses on the Navy's strategic responses to developments in terms of the "platforms" employed for deterrence, control of the seas, communications, and intelligence. The appendix presents a list of property types (excluding objects such as aircraft, missiles, and vessels) and recommendations for evaluating integrity and National Register of Historic Places significance.

Morgan, Mark L., and Mark A. Berhow. *Rings of Supersonic Steel: Air Defenses of the United States Army 1950-1979, An Introduction And Site Guide*. 2nd ed. Bodega Bay, CA: Hole in the Head Press, 2002. This study is available from the publisher; a 3rd edition is forthcoming. An excerpt from the book may be seen on the Google Books Web site at http://books.google.com/books?id=vagljMKPYrkC&pg=PP3&dq=Mark+Morgan+Nike+Quick+Look&hl=en&ei=LFtUTeT1Gsqr8AaAk8D6CA&sa=X&oi=book_result&ct=result&resnum=1&sqi=2&ved=0CDYQ6AEwAA#v=onepage&q=Mark%20Morgan%20Nike%20Quick%20Look&f=false. The extract contains historic contexts for various installations as well as photographs, maps, diagrams, and other graphic materials.

Morrison, Dawn A., and Susan I. Enscore. *The Built Environment of Cold War Era Servicewomen*. Washington, DC: Department of Defense, Legacy Resource Management Program Cold War Project, 1996. Available as a PDF file at the WorldCat Web site, http://www.worldcat.org/title/built-environment-of-cold-war-era-servicewomen/oclc/227900613?title=&detail=&page=frame&url=http%3A%2F%2Fhandle.dtic.mil%2F100.2%2FADA455179%26checksum%3D3fc814ff06766e54833556f4e4a23de9&linktype=digitalObject. The study presents a service-wide historic context showing how the accommodation of women into the armed services affected the military's built environment. It presents several property types, largely related to housing, and includes plans and drawings.

Murdock, Scott D., Mikel Travisano, Marsh Prior, and Julian Adams. *Over-the-Horizon Backscatter Radar Network: Maine, Idaho, Oregon, and California*. Seattle, WA: Historic American Engineering Record, 2008. HAER No. ME-98. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. This study contains photographs, historic contexts, descriptions, and significance statements for buildings and other radar facilities.

Pedrotty, Michael A., Julie L. Webster, and Aaron R. Chmiel. *Historical and Architectural Overview of Military Aircraft Hangars; A General History, Thematic Typology, and Inventory of Aircraft Hangars Constructed on Department of Defense Installations*. Champaign, IL: U.S. Army Construction Engineering Research Laboratories, 1999. Prepared for Headquarters, Air Combat Command (ACC), Langley Air Force Base, Virginia. The study's objectives were to identify and describe principal hangar types constructed before 1996; to document the origins, locations, and numbers of hangars; and to provide a context for understanding the aviation and construction history of the major hangar types. The report includes a historic context through the Cold War era, a database of military hangars, and standard hangar drawings. As of January 2010,

the Introduction, Chapter 1 (The Early Years), Chapters 5–7 (The Cold War; Military Hangar Typology, and Conclusions and Recommendations), Appendix A (Military Hangar Database) and Appendix C (Abbreviations and Acronyms) are available as a PDF file at the Federation of American Scientists Web site, http://www.fas.org/man/dod-101/usaf/docs/webster/index.html. Chapters 2–4 (The First World War, The Interwar Years, and The Second World War) and Appendix B (Standard Hangar Drawings) are not yet on line. The hangar database (Appendix A) includes Air Force, Army, Marine Corps, and Navy installations nationwide. The database is presented twice: sorted alphabetically by service and location; sorted by date of construction through 1996.

Shiman, Philip, and Julie L. Webster. *Forging the Sword: Defense Production during the Cold War*. Champaign, IL: U.S. Army Construction Engineering Research Laboratories, 1997. Available as a PDF file at the WorldCat Web site, http://www.worldcat.org/title/forging-the-sword-developing-leaders-for-the-air-operations-center/oclc/74261212?title=&detail=&page=frame&url=http%3A%2F%2Fhandle.dtic.mil%2F100.2%2FADA420573%26checksum%3Dbe6a3cc4c87cec913262d7d90d70c273&linktype=digitalObject. Written under the auspices of the Cold War Task Area, this work provides a historic context for the defense industry from its expansion for World War II through the end of the Cold War. It includes a bibliography and a state-by-state inventory of 64 DoD-owned industrial facilities. Each inventory entry gives the facility's name and location, a brief history including changes in function or product, and a list of sources.

Temme, Virge J. *For Want of a Home: A Study of Wherry and Capehart Military Family Housing***.** Aberdeen Proving Ground, MD: Army Environmental Center, 1998. This historic context study is available from the U.S. Army Environmental Center, ATTN: SFIM-AEC- CDC, 5179 Hoadley Road, Aberdeen PG, MD 21010-5401, and is not posted online. It was written as part of the 1990s Department of Defense review of the history of the Cold War era. The U.S. Army contracted with the Construction Engineering Research Laboratory (CERL), U.S. Army Corps of Engineers, to prepare this study of Wherry and Capehart housing at military installations nationwide. The buildings were constructed during the period 1949–1964 in a military-private partnership with development firms, to provide desperately needed housing for military families. During the programs' lifespan, about 250,000 units were constructed; about 175,000 remained in existence in 1994.

Thompson, Scott, and Martyn D. Tagg. *Identification and Categorization of Cold War–Era Research, Development, Testing, and Evaluation Property Types*. Tucson, AZ: Statistical Research, Inc., 2007. Prepared for Headquarters, Air Force Materiel Command, Wright-Patterson Air Force Base, OH, and available at the Headquarters, Air Combat Command (ACC), Langley Air Force Base, Virginia, library as a PDF file. It is also available on line at the DoD Environment, Safety and Occupational Health Network and Information Exchange Web site, www.denix.osd.mil/cr/upload/04-211-Cold-War-RDT-E.ppt. This is a Department of Defense Cold War Legacy project (04-211) to advise in identifying and classifying research, development, testing, and evaluation

(RTD&E) property types to supplement the types listed in the 1993 DoD publication, *Interim Guidance: Treatment of Cold War Historic Properties for U.S. Air Force Installations* (noted above). For this study, the authors conducted research to identify property types (buildings, structures, and sites) at nine Air Force, Army, and Navy installations: Aberdeen Proving Ground, MD; Arnold AFB, TN; Dugway Proving Ground, UT; Edwards AFB, CA; Hill AFB, UT; Holloman AFB, NM; Naval Air Weapons Station, China Lake, CA; Wright-Patterson AFB, OH; and Yuma Proving Ground, AZ. The resulting list of property types is to be used at all DoD RTD&E installations for consistent categorization as future inventories of Cold War–era resources are undertaken.

Weitze, Karen J. *Cold War Infrastructure for Strategic Air Command: The Bomber Mission*. Sacramento, CA: KEA Environmental, Inc., 1999. Prepared for Headquarters, Air Combat Command (ACC), Langley Air Force Base, Virginia, and available at the ACC library as a PDF file; not available on line. This report includes abstracts by installation of alert facilities and infrastructure discussed within an illustrated context of several property types and categories, including hangars, airfields, and related structures. Recommendations are presented for resource management, including inventory and documentation suggestions. The bibliography lists available inventories of Cold War material culture at thirty-four Air Force bases (*see also* Karen Lewis et al., *A Systemic Study of Air Combat Command Cold War Material Culture* above). The bases are: Andrews AFB, MD; Barksdale AFB, LA; Beale AFB, CA; Cannon AFB, NM; Castle AFB, CA; Charleston AFB, SC; Davis-Monthan AFB, AZ; Dover AFB, DE; Dyess AFB, TX; Ellsworth AFB, SD; Fairchild AFB, WA; Grand Forks AFB, ND; Griffiss AFB, NY; Holloman AFB, NM; Homestead AFB, FL; Howard AFB, Panama; K. I. Sawyer AFB, MI; Langley AFB, VA; Little Rock AFB, AK; Loring AFB, ME; MacDill AFB, FL; McChord AFB, WA; McConnell AFB, KS; Minot AFB, ND; Moody AFB, GA; Mountain Home AFB, ID; Nellis AFB, NV; Offutt AFB, NB; Pope AFB, NC; Scott AFB, IL; Seymour Johnson AFB, NC; Shaw AFB, SC; Travis AFB, CA; Whiteman AFB, MO. Information in this study is updated and expanded in *Historic Facilities Groups* (2010) below.

———. *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, Virginia, this report includes abstracts by installation of fighter and command-and-control alert facilities and infrastructure discussed within an illustrated context of seven property types. Recommendations are presented for resource management, including inventory and documentation suggestions. The bibliography lists available inventories of Cold War material culture at thirty-four Air Force bases (*see also* Karen Lewis et al., *A Systemic Study of Air Combat Command Cold War Material Culture* above). The bases are: Andrews AFB, MD; Barksdale AFB, LA; Beale AFB, CA; Cannon AFB, NM; Castle AFB, CA; Charleston AFB, SC; Davis-Monthan AFB, AZ; Dover AFB, DE; Dyess AFB, TX; Ellsworth AFB, SD; Fairchild AFB, WA; Grand Forks AFB, ND; Griffiss AFB, NY; Holloman AFB, NM; Homestead AFB, FL; Howard AFB, Panama;

K. I. Sawyer AFB, MI; Langley AFB, VA; Little Rock AFB, AK; Loring AFB, ME; MacDill AFB, FL; McChord AFB, WA; McConnell AFB, KS; Minot AFB, ND; Moody AFB, GA; Mountain Home AFB, ID; Nellis AFB, NV; Offutt AFB, NB; Pope AFB, NC; Scott AFB, IL; Seymour Johnson AFB, NC; Shaw AFB, SC; Travis AFB, CA; Whiteman AFB, MO. Information in this study is updated and expanded in *Historic Facilities Groups* (2010) below.

———————. *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, Virginia, and available at the ACC library as a PDF file; not available on line. The study focuses primarily on the first half of the Cold War and on three prominent programs: Strategic Air Command (SAC) bomber alert, Air Defense Command fighter-interceptor squadron (FIS) alert, and special weapons stockpile sites and operational storage. The work is divided into two parts (SAC alert and FIS alert) and lists and evaluates (with photographs) various sites for potential National Register of Historic Places listing. A classified appendix treating nuclear weapons storage sites is a stand-alone document (not included).

———————. *Keeping the Edge: Air Force Materiel Command Cold War Context (1945–1991)*. 3 vols. San Francisco, CA: EDAW, Inc., 2003. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. Volume 1 (Command Lineage, Scientific Achievement, and Major Tenant Missions) contains a Cold War historic context and the history of the Air Force Materiel Command and its evolving missions. Volume 2 (Installations and Facilities) focuses on selected Air Force bases, their missions, and key facilities. The bases include Arnold, Brooks, Edwards, Eglin, Hanscom, Hill, Kelly, Kirtland, Los Angeles, McClellan, Robins, Tinker, Wright-Patterson, and the Air Force Research Laboratory in Rome, NY. Volume 3 contains the index to Volumes 1 and 2. John C. Lonnquest began the predecessor to this study in the 1990s under the tentative title of *Developing the Weapons of War: Military Research and Development, Test and Evaluation (RDT&E) during the Cold War*. Lonnquest's study was preliminary because of lack of funding; *Keeping the Edge* is the product of new research and writing.

Winkler, David F. *Searching the Skies: The Legacy of the United States Cold War Defense Radar Program*. Langley Air Force Base, VA: Headquarters Air Combat Command, 1997. Available as a PDF file at the WorldCat Web site, http://www.worldcat.org/title/searching-the-skies-the-legacy-of-the-united-states-cold-war-defense-radar-program/oclc/227856727?title=&detail=&page=frame&url=http%3A%2F%2Fhandle.dtic.mil%2F100.2%2FADA331231%26checksum%3D719384448ad87b1ed3b4d3aba8a51fd7&linktype=digitalObject. This work presents a historic context for the use of radar in air defense, beginning with earlier methods in 1918 and continuing through World War II and the Cold War to 1994. A myriad of systems and networks, such as the DEW Line, are discussed. The study includes a bibliography and a state-by-state inventory of about

300 sites of all types. Each inventory entry gives the name and location of the site and a brief narrative history that includes the radar type used at the site.

———————. *Training to Fight: Training and Education during the Cold War*. Washington, DC: Department of Defense, Legacy Resource Management Program Cold War Project, and United States Air Force Air Combat Command, 1997. Available as a PDF file at the WorldCat Web site, http://www.worldcat.org/title/training-to-fight-training-and-education-during-the-cold-war/oclc/227907992?title=&detail=&page=frame&url=http%3A%2F%2Fhandle.dtic.mil%2F100.2%2FADA371483%26checksum%3D7ef7d00de0a850d3c9cbcc8ab626123f&linktype=digitalObject. The study provides a historic context for military training throughout American history to the end of the Cold War (1989). Its focus is primarily on four training areas: indoctrination, technical, skill and readiness, and professional military education. A bibliography is provided, as well as a state-by-state inventory of 167 training and education sites. Each inventory entry gives the name and location of the site, as well as a brief history that includes the training function, and a short list of sources.

CULTURAL RESOURCE MANAGEMENT SITE REPORTS, SPECIFIC CONTEXT STUDIES, AND NATIONAL HISTORIC LANDMARKS NOMINATIONS

This section is intended to provide the researcher with an overview of the variety of site-specific cultural resource management reports that are available for study. Some of these reports can be found on the Internet, while others are in the files of federal or state historic preservation offices, or at the respective bases. Some may be found in libraries listed on the WorldCat Web site, http://www.worldcat.org, or for sale by Amazon or other book dealers. This section should be regarded as a sampling of the reports that are available. Several of the studies are annotated here. Two National Historic Landmarks nominations also are included to serve as models.

Altschul, Jeffrey H., and Steven D. Shelley. *Cultural Resources Inventory of Eight Titan Missile Silos in the Greater Tucson Area, Pima County, Arizona*. Tucson, AZ: Statistical Research, Inc., 1987. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line.

Corbett, Michael. *Architectural Study of Beale Air Force Base, Yuba County, California: A Preliminary Survey and Historical Overview of World War II and Cold War Era Properties*. Chico, CA: Dames and Moore, Inc., 1994. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. This draft study includes a historical overview of Beale AFB and a tabular inventory and evaluation of buildings.

Denfeld, D. Colt, Jennifer Abel, and Dale Slaughter. *The Cold War in Alaska: A Management Plan for Cultural Resources, 1994–1999*. N.p., AK: U.S. Army Corps of Engineers, Alaska District, 1994. Chapter 8 ("Nike Hercules Deactivated") of this book can be found on the U.S. Army Alaska Web site at http://www.usarak.army.mil/conservation/Nike%20Operations%20in%20Alaska/Chapter

%208.pdf. A complete copy is not available on line. The extract includes historic context, photographs, and a bibliography.

Department of Energy. *Cultural Resource Management Plan, DOE Oak Ridge Reservation, Anderson and Roane Counties, Tennessee*. Washington, DC: U.S. Department of Energy, 2001. This report includes a history of the nuclear facilities at Oak Ridge from the Manhattan Project through the Cold War. It also focuses in detail on the most-significant facilities that contribute to the interpretation of the history of Oak Ridge.

———. *Linking Legacies: Connecting the Cold War Nuclear Weapons Production Process to Their Environmental Consequences*. Washington, DC: U.S. Department of Energy, 1997. This volume gives an overview of the different aspects of nuclear weapons production in the Cold War, from uranium mining, fuel fabrication, reactor operations and production of fissile materials, to waste management. It also addresses the nature and extent of environmental contamination at nuclear production sites.

Engel, Jeffrey A., Christina Slattery, Mary Ebeling, Erin Pogany, and Amy R. Squitieri. *The Missile Plains: Frontline of America's Cold War*. Historic Resource Study, Minuteman Missile National Historic Site, South Dakota. Washington, DC: National Park Service, 2003. Available as a PDF file at the National Park Service Web site, http://www.nps.gov/history/history/online_books/mimi/hrs.htm. The study contains a Cold War historic context that includes the history of the development and construction of the site, photographs, and the National Register of Historic Places nomination for the launch and control facilities in an appendix.

Enscore, Susan, Adam Smith, and Sunny Stone. *Fort Bliss Main Post Early Cold War BASOPS Building Inventory and Evaluation, 1951–63*. Fort Bliss, TX: Conservation Division, Directorate of Environment, 2006. Available as a PDF file at the Web site, http://www.cecer.army.mil/techreports/ERDC-CERL_SR-06-53/ERDC-CERL_SR-06-53.pdf. This report includes inventories (with photographs, maps, and drawings) of 160 Base Operations (BASOPS) buildings constructed at Fort Bliss Main Post between 1951 and 1963. Recommendations for eligibility for nomination to the National Register of Historic Places (NRHP) were made based on the significance of the buildings and their relative integrity. Because previous studies have identified the Fort Bliss properties that are directly related to exceptionally important Army Cold War activities, this report focuses on future determinations of eligibility for nomination to the NRHP.

Fulton, Jean, and Sonya Cooper. *"Full Moral and Material Strength": The Early Cold War Legacy at Holloman Air Force Base, New Mexico (ca. 1950–1960)*. Holloman Air Force Base, NM: Holloman Air Force Base, Cultural Resources Publication No. 6, 1996. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. The study contains a World War II and Cold War–Era historic context for the base, as well as photographs, inventory forms, and evaluations of seventy-three buildings of which eleven were considered eligible for the National Register of Historic Places.

Herdrich, David J. *A Cultural Resource Assessment of the Ellsworth Air Force Base Minuteman II Missile Range in Butte, Haakon, Jackson, Lawrence, Meade, Pennington, and Perkins Counties, South Dakota*. Champaign, IL: U.S. Army Construction Engineering Research Laboratories, 1994. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. This report concerns an archaeological survey carried out as the missile sites were being deactivated.

Historic American Engineering Record. "Rabbit Creek White Alice Site, Anchorage, Alaska, HAER AK-23." Washington, DC: National Park Service, 1987[?]. This report and others like it, sometimes with photographs and plans, can be accessed by searching the Library of Congress Prints and Photographs Online Catalog at www.loc.gov/pictures/.

Kendrick, Gregory. *Last Line of Defense: Nike Missile Sites in Illinois*. Denver, CO: National Park Service, 1996. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; also available on line at Ed Thelen's Nike Missile Web site, http://ed-thelen.org/last-line.html. The study contains a Cold War historic context, a history of the development and deployment of the Nike system, and detailed descriptions of housing, administrative, and support buildings as well as of the battery control and launch areas at two Nike missile bases: C-84 and SL-40 in Illinois, near Barrington and Hecker, respectively.

———. *The Minuteman Missile*. Denver, CO: National Park Service, 1995. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. This study preceded the creation of Minuteman Missile National Historic Site, South Dakota, in 1999. The study contains a history of the Minuteman system, site descriptions, environmental and socioeconomic assessments, and alternatives for preservation and visitor center locations.

Kise Franks and Straw, Inc. *Vint Hill Farms Station, Warrenton, Fauquier County, Virginia: Phase I Cultural Resource Investigations Report*. Philadelphia, PA: Kise Franks and Straw, Inc., 1994. Available at the Virginia Department of Historic Resources, Richmond, VA; not available on line. This report presents the historic context of Vint Hill Farms Station (ca. 1860–1991) and its functions as a farm, field monitoring station during World War II and afterward, and intelligence-equipment research and development center during the Cold War. A total of sixty buildings were inventoried, as well as two prehistoric archaeological sites.

Lauber, John F. "Minuteman ICBM National Historic Landmark, Ellsworth Air Force Base, SD." National Historic Landmark Nomination. Minneapolis, MN: Hess, Roise and Co., 1994. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line.

Lowe, James A., Lori E. Rhodes, and Katherine J. Roxlau. *Mountain Home Air Force Base Cold War Material Culture Inventory*. Albuquerque, NM: Mariah Associates, Inc.,

1995. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. The report includes a Cold War historic context for the base, as well as some discussion of property types; the detailed inventory was not included.

Marceau, T. E., D. W. Harvey, and D. C. Stapp. *Hanford Site Historic District: History of the Plutonium Production Facilities, 1943–1990*. Columbus, OH: Battelle Press, 2003. This volume discusses the history of the Hanford site from its construction during the Manhattan Project to its continued activities during the Cold War. It includes information on the facilities, the workforce, historic preservation, and other topics.

Mattson, Wayne O., and Martyn D. Tagg. *"We Develop Missiles, Not Air!": The Legacy of Early Missile, Rocket, Instrumentation, and Aeromedical Research Development at Holloman Air Force Base*. Holloman Air Force Base, NM: Holloman Air Force Base, Cultural Resources Publication No. 2, 1995. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. This publication is the result of a Department of Defense Cold War Legacy–funded project, the Thematic Study of Early Missile, Instrumentation, and Test Objects Project (Legacy No. 767). The study was designed as a demonstration project to begin the identification and documentation of such sites on Holloman AFB lands. The various property types associated with missile and rocket complexes, instrumentation facilities, and aeromedical research laboratories are described, together with historic contexts. The property types are analyzed for potential National Register of Historic Places eligibility. Cultural resource management considerations are also presented.

Murphey, Joseph. *McGuire Air Force Base, New Jersey: Supplement to Reconnaissance Survey of Cold War Properties, McGuire Air Defense Missile Site, New Egypt, New Jersey*. Plano, TX: Geo-Marine, Inc., 1998. Available in hard copy at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia, and likely at Travis AFB; not available on line. The report was prepared as U.S. Air Force Air Mobility Command Cold War Series Report of Investigations Number 8-A. This series was completed as a single project, a combined command-wide inventory and context of real property surveys and evaluations conducted at selected installations in the United States to identify potentially significant Cold War–related buildings and structures. It is part of a reconnaissance survey of Cold War properties conducted at McGuire AFB that found one group eligible for nomination to the National Register of Historic Places: the SAGE (Semi-Automated Ground Environment) complex. All of the buildings in the complex were of less than fifty years of age when the report was prepared. The site, which retains sufficient integrity to justify its eligibility as a district, is considered exceptionally significant for its associations with Cold War technology. The period of significance is 1959–1972.

Nolte, Kelly, Mark A. Steinback, and Amber L. Courselle. *Military Historic Context Emphasizing the Cold War Including the Identification and Evaluation of Above Ground Cultural Resources for Thirteen Department of Defense Installations in the State of Georgia.* Fort Benning, GA: Fort Benning Military Reservation and Department of

Defense Legacy Resource Management Program, 2006. Available as a PDF file at the DoD Environment, Safety and Occupational Health Network and Information Exchange Web site, http://www.denix.osd.mil/cr/upload/03-175-Final-Report.pdf. The report contains historic contexts and descriptions of property types by service branch for the following installations: Fort McPherson (1885), Fort Benning (1918), Fort Stewart (1940), Hunter Army Air Field (1940), Moody Air Force Base (1940), Fort Gillem (1941), Robins Air Force Base (1941), Fort Gordon (1941), Naval Air Station Atlanta (1941), Dobbins Air Reserve Base (1942), Marine Corps Logistics Base Albany (1952), Naval Supply Corps School Athens (1954), and Naval Submarine Base Kings Bay (1978).

Price, Kathy. *Northern Defenders: Cold War Context of Ladd Air Force Base, Fairbanks, Alaska, 1947–1961*. Fort Collins, CO: Center for Ecological Management of Military Lands, 2001. Available as a PDF file at the U.S. Army Alaska Web site, http://www.usarak.army.mil/conservation/files/Ladd%20Air%20Force%20Base%20Study.pdf. The study provides a historic context for Ladd AFB before it became Fort Wainwright in 1961. A bibliography and a building-by-building inventory are included.

Reed, Mary Beth, and Mark Swanson. *Evaluation of Selected Cultural Resources at Fort Monmouth, New Jersey: Context for Cold War Era, Revision of Historic Properties Documentation, and Survey of Evans Area and Sections of Camp Charles Wood.* Stone Mountain, GA: New South Associates, 1996. Available as a PDF file at the InfoAge Web site, http://www.infoage.org/html/contents-crr.html. The report includes the historic contexts noted in the title, plans and drawings, a bibliography, and an inventory of significant buildings.

Sackett, Russell, Brian Knight, Sue Sitton, and Martha Yduarte. *Fort Bliss Integrated Cultural Resources Management Plan, 2008–2012*. Ft. Bliss, TX: Conservation Branch, Directorate of Public Works, 2008. Available as a PDF file at the Fort Bliss Web site, https://www.bliss.army.mil/dpw/Environmental/documents/ICRMP_Volume%20I%20_PUBLIC.pdf. The report contains a historic context for Fort Bliss through the Cold War, the management plan, an inventory of sites, and descriptions (including photographs and maps) of several proposed historic districts.

Spradlin, Carla, Richard Bierce, and Virge J. Temme. *Historical and Architectural Documentation Reports of Patrick Air Force Base, Cocoa Beach, Florida*. Champaign, IL: Tri-Services Cultural Resources Research Center, 1994. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. The report contains a Cold War historic context for the base as well as HABS/HAER reports and evaluations for 150 buildings.

Stumpf, David K. "Titan II ICBM Missile Site 8." National Historic Landmark Nomination. Tucson, AZ: Tucson Air Museum Foundation, 1993. Available as a PDF file at the National Park Service Web site, http://www.nps.gov/nhl/designations/samples/az/TitanII.pdf.

Swanson, Mark, and Lisa D. O'Steen. *Evaluation of Selected Historic Properties at Vint Hill Farms Station: Testing of Archaeological Site 44FQ137, Preparation of Civil War Context, and Development of Cold War Context*. Stone Mountain, GA: New South Associates, 1995. Available at the Virginia Department of Historic Resources, Richmond, VA; not available on line. This report presents a detailed description of a prehistoric archaeological site as well as a Civil War and Cold War historic context for Vint Hill Farms Station. During the Cold War era (1946–1989), 203 buildings were constructed at the installation. The report contains a buildings and structures inventory.

Tagg, Martyn D., Sonya Cooper, and Jean Fulton. *"Airplanes, Combat and Maintenance Crews, and Air Bases": The World War II and Early Cold War Architectural Legacy of Holloman Air Force Base (ca. 1942–1962)*. Holloman Air Force Base, NM: Holloman Air Force Base, Cultural Resources Publication No. 6, 1998. Available as a PDF file at the DoD Environment, Safety and Occupational Health Network and Information Exchange Web site, http://www.denix.osd.mil/cr/upload/FINARCH_0.PDF. The report contains both a general historic context for the World War II and the Cold War eras and a specific context for Holloman AFB during those eras. It also enumerates four building types (operational and support installations, combat weapons and support systems, training facilities, and material development facilities) associated with the base during those eras, discusses them in light of the historic contexts, and evaluates them for potential National Register of Historic Places eligibility.

Temme, Virge J., David Dubois, David Winkler, John Lonnquest, and Aaron Chmiel. *Historical and Architectural Documentation Reports of Calumet Air Force Station, Calumet, Michigan*. Champaign, IL: Tri-Services Cultural Resources Research Center, 1995. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. The report contains a Cold War historic context for the station as well as HABS/HAER reports and evaluations for 108 buildings.

———. *Historical and Architectural Documentation Reports of Havre Air Force Station, Havre, Montana*. Champaign, IL: Tri-Services Cultural Resources Research Center, 1995. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. The report contains a Cold War historic context for the station as well as HABS/HAER reports and evaluations for seventy-two buildings.

———, David Dubois, David Winkler, John Lonnquest, and James Eaton. *Historical and Architectural Documentation Reports of Gibbsboro Air Force Station, Gibbsboro, New Jersey*. Champaign, IL: Tri-Services Cultural Resources Research Center, 1995. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. The report contains a Cold War historic context for the station as well as HABS/HAER reports and evaluations for sixteen buildings.

Temme, Virge J., David Winkler, and John Lonnquest. *Historical and Architectural Documentation Reports of Finley Air Force Station, Finley, North Dakota*. Champaign,

IL: Tri-Services Cultural Resources Research Center, 1995. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. The report contains a Cold War historic context for the station as well as HABS/HAER reports and evaluations for thirty-five buildings.

Ullrich, Rebecca Ann, and Michael Anne Sullivan. *Historic Context and Buildings Assessments for the Lawrence Livermore National Laboratory and Built Environment.* Livermore, CA: Lawrence Livermore National Laboratory and Sandia National Laboratories, 2007. The report contains a historic context for the laboratory and evaluations of buildings at the site.

Waddell, Karen. *Cold War Historical Context, 1951–1991, Fort Richardson, Alaska, United States Army Alaska*. Fort Collins, CO: Colorado State University, 2003. Available as a PDF file at the U.S. Army Alaska Web site, http://www.usarak.army.mil/conservation/files/Fort_Richardson_Cold_War_Historical_Context.pdf. The report contains a historic context for Fort Richardson from WWII through the Cold War. It also includes a discussion of property types and themes, maps, a list of buildings, and a detailed time line for the Cold War and important dates in the history of Fort Richardson.

Webster, Julie, Megan Tooker, Dawn Morrison, Susan Enscore, Suzanne Loechl, and Martin Stupich. *Fort Hood Building and Landscape Inventory with WWII and Cold War Context*. Champaign, IL: Construction Engineering Research Laboratory, 2007. Available as a PDF file at the Defense Technical Information Center Web site, http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA485337&Location=U2&doc=GetTRDoc.pdf. The report contains inventories and evaluations of 463 buildings and landscapes constructed or created at Fort Hood (including the Main Post, North Fort Hood, and West Fort Hood) between 1942 and 1963. It also contains a historic context, 1942–1989, as well as photographs.

Weitze, Karen J. *Andrews Air Force Base, Camp Springs, Maryland: Inventory of Cold War Properties*. Plano, TX: Geo-Marine, Inc., 1996. Available in hard copy at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia, and likely at Andrews AFB; not available on line. The report was prepared as U.S. Air Force Air Mobility Command Cold War Series Report of Investigations Number 1. This series was completed as a single project, a combined command-wide inventory and context of real property surveys and evaluations conducted at selected installations in the United States to identify potentially significant Cold War–related buildings and structures. The resources are primarily associated with the tactical and strategic network created between 1949 and 1962. Specific property types include radar enclaves; command and control facilities; readiness and alert complexes for tactical and strategic aircraft; missile housings and assembly-test units; and weapons areas. All were of less than fifty years of age when the report was prepared. A total of 28 buildings and structures were inventoried. A detailed time line complements the narrative historic context.

———————. *Aurora Pulsed Radiation Simulator HAER No. MD-144*, Plano, TX: Geo-Marine, Inc., 1996. This study contains an extended narrative and historic contexts for a U.S. Army pulsed radiation simulator of the late 1960s.

———————. *Charleston Air Force Base, Charleston, South Carolina: Inventory of Cold War Properties*. Plano, TX: Geo-Marine, Inc., 1996. Available in hard copy at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia, and likely at Charleston AFB; not available on line. The report was prepared as U.S. Air Force Air Mobility Command Cold War Series Report of Investigations Number 2. This series was completed as a single project, a combined command-wide inventory and context of real property surveys and evaluations conducted at selected installations in the United States to identify potentially significant Cold War–related buildings and structures. The resources are primarily associated with the tactical and strategic network created between 1949 and 1962. Specific property types include radar enclaves; command and control facilities; readiness and alert complexes for tactical and strategic aircraft; missile housings and assembly-test units; and weapons areas. All were of less than fifty years of age when the report was prepared. A total of 70 buildings and structures were inventoried. A detailed time line complements the narrative historic context.

———————. *Dover Air Force Base, Dover, Delaware: Inventory of Cold War Properties*. Plano, TX: Geo-Marine, Inc., 1996. Available in hard copy at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia, and likely at Dover AFB; not available on line. The report was prepared as U.S. Air Force Air Mobility Command Cold War Series Report of Investigations Number 3. This series was completed as a single project, a combined command-wide inventory and context of real property surveys and evaluations conducted at selected installations in the United States to identify potentially significant Cold War–related buildings and structures. The resources are primarily associated with the tactical and strategic network created between 1949 and 1962. Specific property types include radar enclaves; command and control facilities; readiness and alert complexes for tactical and strategic aircraft; missile housings and assembly-test units; and weapons areas. All were of less than fifty years of age when the report was prepared. A total of 23 buildings and structures were inventoried. A detailed time line complements the narrative historic context.

———————. *Eglin Air Force Base, 1931-1991: Installation Buildup for Research, Test, Evaluation, and Training*. San Diego, CA: KEA, Inc., 2001. This study contains a detailed historic context for the installation, with a focus on the Cold War decades.

———————. *Grand Forks Air Force Base, Grand Forks, North Dakota: Inventory of Cold War Properties*. Plano, TX: Geo-Marine, Inc., 1996. Available in hard copy at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia, and likely at Grand Forks AFB; not available on line. The report was prepared as U.S. Air Force Air Mobility Command Cold War Series Report of Investigations Number 4. This series was completed as a single project, a combined command-wide inventory and context of real property surveys and evaluations conducted at selected installations in the United States to identify potentially significant Cold War–related buildings and structures. The

resources are primarily associated with the tactical and strategic network created between 1949 and 1962. Specific property types include radar enclaves; command and control facilities; readiness and alert complexes for tactical and strategic aircraft; missile housings and assembly-test units; and weapons areas. All were of less than fifty years of age when the report was prepared. A total of 242 buildings and structures were inventoried. A detailed time line complements the narrative historic context.

———. *Guided Missile Testing in New Mexico: The Air Force at Holloman–White Sands, 1947–1970*. Plano, TX: Geo-Marine, Inc., 1997. Available as a PDF file at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia; not available on line. The study contains a Cold War–Era historic context for the base and the German scientific community, as well as a lengthy analysis of testing programs and property types. Numerous reports related to Holloman AFB are cited.

———. *Historic Range Context: Air Armament Center, Eglin Air Force Base*, Plano, TX: Geo-Marine, Inc., June 2007. This study was published in two volumes: Vol. 1, *Narrative Overview and Appendix A: Radar and Instrumentation Sites, and Over-Water Test Areas, 1936/1939-1996*; Vol. 2, *Appendix B: Land Test Areas, 1936/1939-1996*. The publication documents the facilities across land and water test ranges associated with Eglin AFB, with many historic maps and photographs and focuses on the Cold War decades.

———. *McChord Air Force Base, Tacoma, Washington: Inventory of Cold War Properties*. Plano, TX: Geo-Marine, Inc., 1996. Available in hard copy at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia, and likely at McChord AFB; not available on line. The report was prepared as U.S. Air Force Air Mobility Command Cold War Series Report of Investigations Number 5. This series was completed as a single project, a combined command-wide inventory and context of real property surveys and evaluations conducted at selected installations in the United States to identify potentially significant Cold War–related buildings and structures. The resources are primarily associated with the tactical and strategic network created between 1949 and 1962. Specific property types include radar enclaves; command and control facilities; readiness and alert complexes for tactical and strategic aircraft; missile housings and assembly-test units; and weapons areas. All were of less than fifty years of age when the report was prepared. A total of 29 buildings and structures were inventoried. A detailed time line complements the narrative historic context.

———. *PAVE PAWS Beale Air Force Base HAER No. CA-319*. San Diego, CA, and Plano, TX: KEA Environmental, Inc., and Geo-Marine, Inc., 2006. This study includes a full context of American and Russian large-phased array radars of the late Cold War.

———. *Scott Air Force Base, Belleville, Illinois: Inventory of Cold War Properties*. Plano, TX: Geo-Marine, Inc., 1996. Available in hard copy at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia, and likely at Scott AFB; not available on line. The report was prepared as U.S. Air Force Air Mobility Command Cold War

Series Report of Investigations Number 6. This series was completed as a single project, a combined command-wide inventory and context of real property surveys and evaluations conducted at selected installations in the United States to identify potentially significant Cold War–related buildings and structures. The resources are primarily associated with the tactical and strategic network created between 1949 and 1962. Specific property types include radar enclaves; command and control facilities; readiness and alert complexes for tactical and strategic aircraft; missile housings and assembly-test units; and weapons areas. All were of less than fifty years of age when the report was prepared. A total of 60 buildings and structures were inventoried. A detailed time line complements the narrative historic context.

———. *Travis Air Force Base, Fairfield, California: Inventory of Cold War Properties*. Plano, TX: Geo-Marine, Inc., 1996. Available in hard copy at the Air Combat Command (ACC) library, Langley Air Force Base, Virginia, and likely at Travis AFB; not available on line. The report was prepared as U.S. Air Force Air Mobility Command Cold War Series Report of Investigations Number 7. This series was completed as a single project, a combined command-wide inventory and context of real property surveys and evaluations conducted at selected installations in the United States to identify potentially significant Cold War–related buildings and structures. The resources are primarily associated with the tactical and strategic network created between 1949 and 1962. Specific property types include radar enclaves; command and control facilities; readiness and alert complexes for tactical and strategic aircraft; missile housings and assembly-test units; and weapons areas. All were of less than fifty years of age when the report was prepared. A total of 50 buildings and structures were inventoried. A detailed time line complements the narrative historic context.

Appendix A

Registration Requirements for Listing in the National Register of Historic Places

This section is intended to assist agencies and individuals in evaluating properties related to the Cold War for nomination to the National Register of Historic Places.

NATIONAL REGISTER OF HISTORIC PLACES

Properties nominated to the National Register of Historic Places for their association with the Cold War must be able to illustrate one or more of the topics identified in the historic context. The association must have been established between the beginning of the Cold War (approximately at the end of World War II) and December 25, 1991, when Mikhail Gorbachev signed the document officially disbanding the Soviet Union.

The properties must be significant at the national, state, or local level and retain sufficient integrity to be listed.

Significance

According to National Register regulations (36 CFR 60), the quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association. They must also satisfy at least one of the following four criteria:

(A) Associated with events that have made a significant contribution to the broad patterns of our history;

(B) Associated with the lives of significant persons in our past;

(C) Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction;

(D) Has yielded or may be likely to yield information important in history or prehistory.

Criterion A

To be eligible for listing in the National Register of Historic Places under this criterion, properties must be associated with historic events or patterns of events with significance at the national, state, or local levels.

Places associated with research and development under this criterion might include laboratories and facilities designed for the testing of components. Places already listed in the National Register of Historic Places include McKinley Climatic Laboratory, Okaloosa County, Florida, and Oak Ridge Historic District, Anderson County, Tennessee.

Places associated with production and testing may include factories, arsenals, test sites, and similar facilities. Places already listed in the National Register of Historic Places include Fort Hancock and Sandy Hook Proving Ground Historic District, Monmouth

County, New Jersey; One-Million-Liter Test Sphere (Horton Test Sphere), Fort Detrick, Frederick County, Maryland; and Rocky Flats Plant, Jefferson County, Colorado.

Places and resources associated with controlling and executing the national defense may include command and control centers, missile sites, flight training facilities, ships and aircraft, and military posts. Places and resources already listed in the National Register of Historic Places include D-01Launch Control Facility/D-09 Launch Facility, Ellsworth AFB Jackson/Pennington County, South Dakota; Site Summit, Anchorage County, Alaska; Tierra Amarilla AFS P-8 Historic District, Rio Arriba County, New Mexico; Titan II ICBM Launch Complex 374-7 Site, Van Buren County, Arkansas; Titan II ICBM Launch Complex 374-5 Site, Faulkner County, Arkansas; and Titan II ICBM Launch Complex 373-5 Site, White County, Arkansas.

Places associated with politics and government may include dwellings, office buildings, and other facilities. No properties meeting this criterion are currently known to be listed in the National Register of Historic Places that are not also National Historic Landmarks.

Criterion B

To be eligible for listing in the National Register of Historic Places under this criterion, properties must be associated with individuals who played significant roles in the Cold War with relation to the themes described above. No properties meeting this criterion are currently known to be listed in the National Register that are not also National Historic Landmarks.

Criterion C

Places associated with the Cold War with relation to the themes described above that are also good examples of architecture, landscape architecture, engineering, planning, or construction techniques may be eligible for listing in the National Register of Historic Places under this criterion. No properties meeting this criterion are currently known to be listed in the National Register that are not also National Historic Landmarks.

Criterion D

This criterion is intended primarily for archeological resources. To be eligible for listing in the National Register of Historic Places as significant sites under this criterion, the documentation for the property must demonstrate that physical remains at the site have answered or are likely to answer research questions about topics identified in the historic context. No properties meeting this criterion are currently known to be listed in the National Register.

National Register Exceptions

Ordinarily, cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past fifty years may not be considered eligible for the National Register. However, such

properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
(A) A religious property deriving primary significance from architectural or artistic distinction or historical importance;
(B) A building or structure removed from its original location but which is primarily significant for architectural value, or which is the surviving structure most importantly associated with a historic person or event;
(C) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building associated with his or her productive life; or
(D) A cemetery that derives its primary importance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events;
(E) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived;
(F) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
(G) A property achieving significance within the past 50 years if it is of exceptional importance.

All of the Cold War–related sites that are noted in the foregoing section as having been listed in the National Register meet exception criterion G. Their periods of significance generally extend into the 1970s if not further, well short of the fifty-year limit.

Areas of Significance
Several areas of significance can be associated with the Cold War. Derived from the historic context above, they include Communication, Engineering, Industry, Invention, Maritime History, Military, Politics/Government, and Science. These areas of significance and others are explained in *National Register Bulletin: Guidelines for Evaluating and Registering Archeological Properties* (2000).

Integrity
For a property related to the Cold War to be listed in the National Register of Historic Places, the property must retain sufficient integrity: the historic fabric that conveys its historical significance. Seven standards can be used to assess the integrity of a property: location, design, setting, materials, workmanship, feeling, and association.

Location is the exact place where a historic event occurred or where a historic property was constructed. A property associated with the Cold War will meet the standard of location if it is the actual site where something significant happened or if it is the place where a historic structure was built. Properties that have been moved may only be considered for designation if they meet the requirements of Exception B above.

Design includes the architectural features that establish the historic form, plan, space, structure, and style of a property. In districts, design reflects the way in which buildings,

sites, and structures relate to each other. If essential design elements are lost in the process of rehabilitation or adaptive reuse, the integrity of the property will be reduced.

Setting relates to the environment in which a property is located. A building constructed in a rural location will have greater integrity of setting if the surroundings are still rural than if they have been enveloped by new structures.

Materials are the elements from which a structure is built. Eligible properties need to retain a high degree of original materials, both on the exterior and on the interior.

Workmanship reflects the skill and labor required to construct a historic building or structure. Generally, good workmanship is appropriate to the type of structure, whether a modest dwelling, a missile site, or an architecturally sophisticated public building.

Feeling is a historic property's expression of the time in which it was constructed or used. Modern intrusions, surfaces, and treatments may adversely affect the historic feeling of a property.

Association is the direct link between an important historic event or person and a specific site. A site where a significant event actually occurred or where a creative person did his work will have a strong element of association if the property still conveys its historic character through the existence of other physical features.

The integrity of an archeological site is a relative measure depending on the historic context of the property. A property with good archeological integrity will have relatively intact and complete deposits that have not been severely affected by subsequent activities or natural processes. Few archeological sites have completely undisturbed deposits because of the continuing occupation or periodic reuse of most sites. An archeological site with good integrity, therefore, will generally contain deposits that reflect the activities that took place there and the time during which they occurred—qualities related to the standards listed above for evaluating integrity. For detailed guidance on evaluating the integrity of archeological sites, see *National Register Bulletin: Guidelines for Evaluating and Registering Archeological Properties* (2000).

Evaluation

Historic properties considered for listing in the National Register must be evaluated against other comparable properties also associated with the Cold War. Through such evaluation, those that have a strong association with the era, are significant on the national, state, or local levels, and possess good integrity will be the best properties to be considered for listing.

Properties associated with the Cold War that are eligible for listing in the National Register of Historic Places are rare. Many of the places and buildings that may have been associated with the era no longer exist, having been dismantled or destroyed in accordance with the provisions of various treaties or because newer technologies have required their replacement for military purposes.

Appendix B

National Register Properties and Study List

This appendix lists Cold War–related properties that have national, state, or local significance. The properties in the first two categories below are either listed in the National Register of Historic Places or have been determined eligible for listing (DOE). The third category, the Study List, typically contains those properties identified in the course of this theme study that may be eligible for listing in the National Register of Historic Places, although additional research is necessary in most cases to confirm their significance and integrity. Because of the unusual nature of Cold War–related properties and because the number of potentially eligible properties is enormous, however, the third category below contains a discussion instead of a list.

National Register Properties (Listed)

Abo Elementary School and Fallout Shelter, Eddy County, New Mexico (listed on September 29, 1999)
This school was constructed in Artesia in1962. Between that date and 1989, the building played a role in civil defense as a designated fallout shelter.

Building 710, Defense Civil Preparedness Agency, Region 6 Operations Center, Jefferson County, Colorado (listed on March 2, 2000)
This building, located in Lakewood, was completed in 1969 as one of eight civil defense operations centers. It is a bunker-like facility designed to withstand nuclear attack and fallout. Since 1979, it has housed the Federal Emergency Management Agency Region 8 Operations Center.

D-01 Launch Control Facility/D-09 Launch Facility, Ellsworth AFB Jackson/Pennington County, South Dakota (listed on November 29, 1999)
The launch facility (D-09) and the launch control facility (D-01), located about eleven miles apart, together comprise the Minuteman Missile National Historic Site. The missile silo was constructed in 1963 and operated by the 66th Strategic Missile Squadron of the 44th Strategic Missile Wing. It still contains a missile (unarmed) visible to visitors. The launch control center consists of an above-ground building and the underground control center itself.

McKinley Climatic Laboratory, Okaloosa County, Florida (listed on October 6, 1997)
Completed in 1947 at Eglin Air Force Base in Florida, this refrigerated hangar replaced Ladd Air Force Base in Fairbanks, Alaska, as the Air Force's principal cold-weather test site. It was named for Col. Ashley McKinley, who suggested the facility and oversaw its construction. Virtually every airplane type in the Air Force inventory has been tested there.

Nike Missile Site C47, Porter County, Indiana (listed on January 21, 2001)
This site, constructed 1954–1956, consists of two parcels located about one mile apart: the Launcher Area and the Control Area. The Launcher Area includes underground

launch bunkers, and administrative building, a fallout shelter, and a vehicle maintenance building. The Control Area contains thirteen buildings, five radar towers, a wastewater treatment facility, and other resources. The site was closed in 1974.

Oak Ridge Historic District, Anderson County, Tennessee (listed on September 5, 1991)
The federal government began condemning property for this site in 1942, and then quickly constructed housing for the employees developing the atomic bomb at the nearby Clinton Engineering Works. Longtime residents were evicted and their land condemned because of the high level of secrecy surrounding the Manhattan Project. The new Oak Ridge residential area enabled the government to keep both the workers and the works isolated from public scrutiny.

Office of Civil Defense Emergency Operations Center, Jefferson County, Colorado (listed on December 16, 1999)
This building, located in Lakewood, opened in 1961. It is an underground bunker-like facility; only a mound and ventilation stacks are visible. It is presently abandoned and empty.

One-Million-Liter Test Sphere (Horton Test Sphere), Ft. Detrick, Frederick County, Maryland (listed on November 23, 1977)
During the Cold War, unconventional weapons were developed and tested but never used in warfare. The U.S. Army Biological Warfare Laboratories constructed this testing facility and used it from 1951 to 1968 to study infectious-agent aerosols and munitions. Although a fire in 1974 destroyed the building that housed the facility, the test sphere remains intact.

Rocky Flats Plant, Jefferson County, Colorado (listed on May 19, 1997)
This plant, located north of Denver, operated from 1952 to 1989 to process and machine plutonium into detonators or "triggers" for nuclear weapons. Dow Chemical and Rockwell International managed the facility successively until environmental violations resulted in the plant's temporary closure in 1989. Environmental cleanup then became the major priority at the site. The site's nuclear weapons production mission ended officially in 1993.

Site Summit, Anchorage County, Alaska (listed on July 11, 1996)
One of eight Nike missile sites constructed in Alaska, Site Summit was completed in 1958 to protect Anchorage, Fort Richardson, and Elmendorf Air Force Base. The site consists of a launch area and a control area some distance away. Live-fire exercises took place at Site Summit until 1964, when nearby population expansion rendered them too dangerous. The site was deactivated in 1979.

Tierra Amarilla AFS P-8 Radar Site Historic District, Rio Arriba County, New Mexico (listed on February 26, 2001)
The earliest radar station at this location was constructed in 1949 atop the mesa. Permanent buildings were constructed between 1950 and 1952. Part of a network of

defensive radar sites, AFS P-8 operated until 1958, when it was closed. The site was transferred to the state of New Mexico three years later. Since then, although part of the facility has been dismantled, the state has been developing a management plan for preservation and interpretation.

Titan II ICBM Launch Complex 374-7 Site, Van Buren County, Arkansas (listed on February 18, 2000)
This Titan II facility is one of three associated with the 308th Strategic Missile Wing in Arkansas and was a component in a Multiple Property Submission. There, on September 19, 1980, a disaster occurred when a missile exploded in its launch duct after a fuel leak, killing an airman and injuring twenty-one people. The launch facility, essentially destroyed, was soon sealed.

Titan II ICBM Launch Complex 373-4 Site, White County, Arkansas (listed on March 6, 2000)
This Titan II facility is one of three associated with the 308th Strategic Missile Wing in Arkansas and was a component in a Multiple Property Submission. Site 373-4 was the first (1961–1963) of eighteen Titan II missile sites constructed in Arkansas. In 1965, an accidental fire killed fifty-three civilian workers who were modifying the launch complex. The site was deactivated late in the 1980s.

Titan II ICBM Launch Complex 374-5 Site, Faulkner County, Arkansas (listed on February 18, 2000)
This Titan II facility is one of three associated with the 308th Strategic Missile Wing in Arkansas and was a component in a Multiple Property Submission. The site contained five missile silos. It was deactivated late in the 1980s.

National Register Properties (DOE)
Grand Forks AFB Safeguard ABM Installation, Grand Forks County, North Dakota:
Missile Radar Site Historic District (DOE on January 30, 1998)
Remote Sprint Launch Site 1 (DOE on June 18, 1998)
Remote Sprint Launch Site 2 (DOE on June 18, 1998)
Remote Sprint Launch Site 3 (DOE on June 18, 1998)
Remote Sprint Launch Site 4 (DOE on June 18, 1998)
In 1967, Grand Forks Air Force Base was selected as an anti-ballistic missile site. Because of changes to the initial concept, environmental issues, and funding delays, construction on perimeter acquisition radar and missile site radar installations did not begin until 1970. The site did not become fully operational, including the installation of Spartan and Sprint missiles, until 1975. Because of Congressional action and the ABM Treaty of 1972, the site operated for less than a year and was abandoned in 1976 except for the perimeter acquisition radar stations, which the Air Force began managing the next year.

National Register Study List

Since 1991, surveys of Cold War–related facilities have produced hundreds of reports and inventories listing thousands of resources that are potentially eligible for listing in the National Register of Historic Places. The resources include individual buildings, structures, sites, and objects, as well as districts that may consist of entire military installations. These surveys are ongoing, in response to base closings, toxic-waste site cleanups, proposals for adaptive reuse, and for other reasons, including—frequently—the imminent demolition of resources.

Typically, the survey reports contain inventories and evaluations of buildings and structures erected during a limited part of the Cold War and often record only certain property types. For example, *Fort Bliss Main Post Early Cold War BASOPS Building Inventory and Evaluation, 1951–63,* by Susan Enscore, Adam Smith, and Sunny Stone (2006) inventories 160 Base Operations (BASOPS) buildings constructed at Fort Bliss Main Post between 1951 and 1963. Some of the buildings are recommended for listing in the National Register of Historic Places (NRHP), but this inventory records only a small number of the potential Cold War–related resources at Fort Bliss for the early Cold War period, and none for the later period. Similarly, Karen J. Weitze's *Grand Forks Air Force Base, Grand Forks, North Dakota: Inventory of Cold War Properties* (1996) inventories 242 Cold War–related buildings and structures associated with the tactical and strategic network created between 1949 and 1962. Property types include radar enclaves; command and control facilities; readiness and alert complexes for tactical and strategic aircraft; missile housings and assembly-test units; and weapons areas. Later resources are not covered. Clearly, to produce a study list even for these two posts would require a large amount of additional survey.

Because the universe of potentially eligible resources is so vast, and yet so largely unknown, it is therefore not possible to develop a definitive "study list" of potentially eligible properties. Instead, each researcher is encouraged to begin with the bibliography and inventory contained in this theme study, and then to reach beyond them to state and federal historic preservation offices, military installations of interest, and other sources to develop his or her own study list for evaluation.

Appendix C

Cold War–Related National Park Service Units

Minuteman Missile National Historic Site, South Dakota
This site, Launch Facility Delta 9, was incorporated into the National Park Service in 1999. From 1963, when it opened, until it closed in 1991 as a result of the signing of the START I treaty, the site contained a fully operational Minuteman missile. The launch and control facilities, including the missile silo, have been restored and are open to the public.

Nike Missile Site SF-88, Golden Gate National Recreation Area, Marin County, California
Constructed in 1954–1955, Nike Missile Site SF-88 guarded San Francisco with twenty Nike Ajax missiles. In 1959, the missiles were replaced with Nike Hercules missiles. The Army Air Defense Command ordered Site SF-88 closed in 1974. The site, included in the Golden Gate National Recreation Area, has been restored and is open to the public.

Appendix D

Preliminary National Inventory of Cold War–Related Sites and Resources

Because the identification of sites related to the Cold War is ongoing, this inventory is of necessity preliminary and selective. It has been assembled from a wide variety of sources, including preservation offices, Web sites, and various repositories. The result is a mix of resources as broad as entire military posts and as specialized as individual Nike missile sites or radar installations. In addition, some of the places listed have been demolished since they were surveyed. It was beyond the scope of this theme study, however, to revisit the sites and districts to determine which are still intact. Like the Bibliography, the researcher must understand that this inventory is incomplete and preliminary rather than comprehensive.

[See Excel Spreadsheet]

	A	B	C
1	STATE	LOCATION	PROPERTY TYPE
2	AK	Fort Richardson (Anchorage)	District
3	AK	Ladd AFB (Anchorage)	District
4	AK	Atkinson Point	Site
5	AK	Barter Island	Site
6	AK	Bernard Harbor	Site
7	AK	Cape Sarichef	Site
8	AK	Cape Sabine	Site
9	AK	Cape Simpson	Site
10	AK	Clear AFS	Site
11	AK	Cold Bay	Site
12	AK	Demarcation Bay	Site
13	AK	Driftwood Bay	Site
14	AK	Flaxman Island	Site
15	AK	Icy Cape	Site
16	AK	Kogru River	Site
17	AK	Lonely	Site
18	AK	McIntyre	Site
19	AK	Nikolski	Site
20	AK	Oliktok	Site
21	AK	Paxson	Site
22	AK	Peard Bay	Site
23	AK	Point Barrow	Site
24	AK	Point Lay	Site
25	AK	Port Heiden	Site
26	AK	Port Moller	Site
27	AK	Shemya AFB (Shemya Island, Aleutians)	Site
28	AK	Wainwright	Site
29	AK	Anchorage Defense Area	Site
30	AK	Fairbanks Defense Area	Site
31	AK	Eielson AFB	District
32	AK	Elmendorf AFB	District
33	AK	Aniak	Site

	A	B	C
34	AK	Anvil Mountain	Site
35	AK	Bear Creek (Tanana)	Site
36	AK	Bethel	Site
37	AK	Big Mountain (Iliamna)	Site
38	AK	Cape Lisburne	Site
39	AK	Cape Newenham	Site
40	AK	Cape Romanzof	Site
41	AK	Fort Yukon	Site
42	AK	Granite Mountain (Haycock/Candle)	Site
43	AK	Hinchinbrook Island	Site
44	AK	Homer	Site
45	AK	Indian Mountain	Site
46	AK	Kalakaket Creek (Galena)	Site
47	AK	King Salmon (Naknek)	Site
48	AK	Kodiak	Site
49	AK	Kotzebue	Site
50	AK	Middleton island	Site
51	AK	North River (Unalakleet)	Site
52	AK	Northeast Cape	Site
53	AK	Pedro Dome (Gilmore)	Site
54	AK	Sitkinak	Site
55	AK	Sparrevohn	Site
56	AK	Tatalina (McGrath)	Site
57	AK	Tin City (Wales)	Site
58	AL	Dauphin Island AFS	Site
59	AL	Eufaula AFS	Site
60	AL	Thomasville AFS	Site
61	AL	Brookley AFB	District
62	AL	Gadsden AFS	District
63	AL	Gunter Annex (Gunter AFB)	Site
64	AL	Maxwell AFB	District
65	AR	Titan II ICBM Launch Complex 373-5 (Center Hill)	Site
66	AR	Titan II ICBM Launch Complex 374-5 (Springhill)	Site

	A	B	C
67	AR	Titan II ICBM Launch Complex 374-7 (Southside)	Site
68	AR	Blytheville AFB	District
69	AR	Titan II ICBM Launch Complex 373-1 (Mount Vernon)	Site
70	AR	Titan II ICBM Launch Complex 373-2 (Rose Bud)	Site
71	AR	Titan II ICBM Launch Complex 373-4 (Pangburn)	Site
72	AR	Titan II ICBM Launch Complex 373-6 (Antioch)	Site
73	AR	Titan II ICBM Launch Complex 373-7 (Velvet Ridge)	Site
74	AR	Titan II ICBM Launch Complex 373-8 (Judsonia)	Site
75	AR	Titan II ICBM Launch Complex 373-9 (Naylor)	Site
76	AR	Titan II ICBM Launch Complex 374-2 (Plumerville)	Site
77	AR	Titan II ICBM Launch Complex 374-4 (Springfield)	Site
78	AR	Titan II ICBM Launch Complex 374-6 Site (Republican)	Site
79	AR	Titan II ICBM Launch Complex 374-8 (Quitman)	Site
80	AR	Titan II ICBM Launch Complex 374-9 (Quitman)	Site
81	AR	Titan II ICBM Missile Silo Site 373-3 (Heber Springs)	Site
82	AR	Titan II ICBM Missile Silo Site 374-1 (Blackwell)	Site
83	AR	Titan II ICBM Missile Silo Site 374-3 (St. Vincent)	Site
84	AR	Little Rock AFB	District
85	AZ	Titan II ICBM Missile Site 8	District
86	AZ	Air Force Plant 44 (Tucson)	District
87	AZ	Luke AFB	District
88	AZ	Williams AFB	District
89	AZ	Davis-Monthan AFB	District
90	CA	Salt Wells Plant (Inyokern)	District
91	CA	Lawrence Livermore National Laboratory (Livermore)	District
92	CA	Ames Research Center (Sunnyvale)	District
93	CA	Moffett Field (Sunnyvale)	District
94	CA	Boron AFS	Site
95	CA	Cambria AFS	Site
96	CA	Klamath AFS	Site
97	CA	Madera AFS	Site
98	CA	Mill Valley	Site
99	CA	Mount Laguna AFS	Site

	A	B	C
100	CA	Point Arena AFS	Site
101	CA	San Clemente Island AFS	Site
102	CA	Santa Rosa Island AFS	Site
103	CA	Norton AFB (San Bernardino)	District
104	CA	Hamilton AFB	District
105	CA	Mather AFB	District
106	CA	Air Force Plant 42 (Palmdale)	District
107	CA	Vandenberg AFB	Site
108	CA	San Francisco Defense Area	Site
109	CA	Los Angeles Defense Area	Site
110	CA	Cheli AFS	District
111	CA	McClellan AFB	District
112	CA	George AFB	District
113	CA	March ARB	District
114	CA	Oxnard AFB	District
115	CA	Edwards AFB	District
116	CA	Santa Susana Field Laboratory	District
117	CA	Los Angeles AFS	District
118	CA	Travis AFB	District
119	CA	Castle AFB	District
120	CA	Cuddeback AFR	District
121	CA	Beale AFB	District
122	CO	Briggsdale	Structure
123	CO	Fort Collins	Structure
124	CO	Greeley	Structure
125	CO	Grover	Structure
126	CO	Nunn	Structure
127	CO	Ent AFB	District
128	CO	Peterson AFB	District
129	CO	Colorado-Wyoming Border	Site
130	CO	U.S. Air Force Academy (Colorado Springs)	District
131	CO	Cheyenne Mountain AFS	District
132	CO	Rocky Flats Plant (Denver)	District

	A	B	C
133	CO	Rocky Mountain Arsenal (Commerce Springs)	District
134	CO	Pueblo Army Depot	District
135	CO	Buckley AFB (Aurora)	District
136	CO	Lowry AFB (Aurora)	District
137	CO	Fort Carson	District
138	CT	Bridgeport Defense Area	Site
139	CT	Hartford Defense Area	Site
140	CT	USS *Nautilus*	Object
141	CT	Nike Missile Site (Ansonia)	Site
142	CT	Nike Missile Site (Avon/Simsbury)	Site
143	CT	Nike Missile Site (Cromwell)	Site
144	CT	Nike Missile Site (East Windsor)	Site
145	CT	Nike Missile Site (Fairfield)	Site
146	CT	Nike Missile Site (Manchester)	Site
147	CT	Nike Missile Site (Milford)	Site
148	CT	Nike Missile Site (Plainville)	Site
149	CT	Nike Missile Site (Portland)	Site
150	CT	Nike Missile Site (Shelton)	Site
151	CT	Nike Missile Site (West Haven)	Site
152	CT	Nike Missile Site (Westport)	Site
153	DC	Bolling AFB	District
154	DE	Newcastle AFB	District
155	DE	Dover AFB	District
156	FL	Pinellas Plant (St. Petersburg)	District
157	FL	Nike Missile Site HM-69, Everglades National Park	Site
158	FL	Jacksonville AFS	Site
159	FL	Key West	Site
160	FL	McCoy AFB	District
161	FL	Eglin AFB	District
162	FL	Tyndall AFB	District
163	FL	Avon Park AFR	District
164	FL	Homestead AFB	District
165	FL	MacDill AFB	District

	A	B	C
166	FL	Patrick AFB	District
167	GA	Dobbins AFB	District
168	GA	Hunter Army Air Field	District
169	GA	Naval Air Station Atlanta	District
170	GA	Robins AFB	District
171	GA	Grand Bay AFR	District
172	GA	Moody AFB	District
173	GA	Fort Gillem	District
174	GA	Fort Gordon	District
175	GA	Fort McPherson	District
176	GA	Fort Stewart	District
177	GA	Marine Corps Logistics Base Albany	District
178	GA	Naval Submarine Base Kings Bay	District
179	GA	Naval Supply School Athens	District
180	GA	Air Force Plant 6 (Dobbins AFB)	District
181	GA	Turner AFB	District
182	Guam	Andersen AFB	District
183	HI	Bellows AFS	Site
184	HI	Oahu Defense Area	Site
185	HI	NCTAMS PAC Wahiwa (Oahu)	District
186	HI	Radio Transmitting Facility Lualualei (Oahu)	District
187	HI	Pacific Missile Range Facility (Kauai)	Site
188	HI	Pearl Harbor Naval Complex (Oahu)	District
189	HI	Naval Magazine Lualualei (Oahu)	District
190	HI	Hickam AFB (Oahu)	District
191	HI	Wheeler Army Air Field (Oahu)	District
192	HI	Camp Smith (Oahu)	District
193	HI	Marine Corps Base Kaneohe Bay (Oahu)	District
194	HI	Marine Corps Training Area Bellows (Oahu)	District
195	HI	Pearl City Annex (Oahu)	District
196	HI	Puuloa Training Facility (Oahu)	District
197	HI	Schofield Barracks (Oahu)	District
198	IA	Burlington Ordnance Plant	District

	A	B	C
199	IA	Missouri Valley	Structure
200	IA	Waverly AFS	Site
201	IA	Offutt AFB Defense Area	Site
202	IA	Sioux City Airport	District
203	ID	Rockford	Structure
204	ID	Saylor Creek AFR	District
205	ID	Mountain Home AFB	District
206	ID	Idaho National Laboratory	District
207	IL	Rock Island Arsenal	District
208	IL	Belleville AFS	Site
209	IL	Hanna City AFS	Site
210	IL	Chicago-Gary Defense Area	Site
211	IL	St. Louis Defense Area	Site
212	IL	O'Hare International Airport	District
213	IL	Chanute AFB	District
214	IL	Scott AFB	District
215	IL	Nike Missile Base C-84	District
216	IL	Nike Missile Base SL-40	District
217	IN	Dana Plant	District
218	IN	Rockville AFS	Site
219	IN	Cincinnati-Dayton Defense Area	Site
220	IN	Chicago-Gary Defense Area	Site
221	IN	Grissom ARB (Kokomo)	District
222	KS	Hutchison AFS	Site
223	KS	Olathe AFS	Site
224	KS	Kansas City Defense Area	Site
225	KS	Topeka AFS	District
226	KS	Forbes ANGB	District
227	KS	Schilling AFB	District
228	KS	McConnell AFB	District
229	KS	Atchison Storage Facility	District
230	KY	Paducah Gaseous Diffusion Plant	District
231	KY	Campbell AFB	District

	A	B	C
232	KY	Snow Mountain AFS (Fort Knox)	Site
233	LA	England AFB	District
234	LA	Chennault AFB	District
235	LA	Houma AFS	District
236	LA	Barksdale AFB	District
237	MA	Georges Shoal	Site
238	MA	North Truro AFS	Site
239	MA	Boston Defense Area	Site
240	MA	Providence Defense Area	Site
241	MA	Cape Cod AFS	District
242	MA	Hanscom AFB	District
243	MA	Charlestown Navy Yard	District
244	MA	Watertown Arsenal	District
245	MA	BOMARC Missile Facility (Sandwich)	District
246	MA	Nike Missile Site (Danvers)	Site
247	MA	Westover AFB (Springfield)	District
248	MA	Camp Edwards (Barnstable Co.)	District
249	MA	Fort Devens (Harvard)	District
250	MD	Washington-Baltimore Defense Area	Site
251	MD	Andrews AFB	District
252	ME	Dow AFB	District
253	ME	Brunswick AFS	Site
254	ME	Caswell AFS	Site
255	ME	Charleston AFS	Site
256	ME	Topsham AFS	Site
257	ME	Western Maine	Site
258	ME	Presque Isle AFB	District
259	ME	Loring AFB	District
260	MI	Empire AFS	Site
261	MI	Fort Custer AFS	Site
262	MI	Port Austin AFS	Site
263	MI	Sault Saint Marie AFS	Site
264	MI	Willow Run Airport	Site

	A	B	C
265	MI	Detroit Defense Area	Site
266	MI	Kincheloe AFB	District
267	MI	Wurtsmith AFB	District
268	MI	Selfridge AFB	District
269	MI	K. I. Sawyer AFB	District
270	MI	Calumet Air Force Station	District
271	MN	Baudette AFS	Site
272	MN	Chandler AFS	Site
273	MN	Finland AFS	Site
274	MN	Snelling AFS	Site
275	MN	Wadena AFS	Site
276	MN	Minneapolis-St. Paul Defense Area	Site
277	MN	Wold-Chamberlain Field	District
278	MN	Duluth Airport	District
279	MO	Kansas City Plant	District
280	MO	Weldon Spring Plant (St. Louis)	District
281	MO	Fordland AFS	Site
282	MO	Kirksville AFS	Site
283	MO	Kansas City Defense Area	Site
284	MO	St. Louis Defense Area	Site
285	MO	Richards-Gebaur AFB	District
286	MO	Whiteman AFB	District
287	MS	Crystal Springs	District
288	MS	Keesler AFB	District
289	MS	Silver Lake Naval Space Surveillance Field Station (Washington Co.)	District
290	MS	Columbus AFB	District
291	MS	Camp Shelby (Hattiesburg)	District
292	MT	Cut Bank AFS	Site
293	MT	Miles City	Site
294	MT	Opheim	Site
295	MT	Yaak	Site
296	MT	Glasgow AFB	District
297	MT	Malmstrom AFB	District

	A	B	C
298	MT	Havre AFS	District
299	NB	Kimball	Structure
300	NB	Omaha AFS	Site
301	NB	Western Nebraska	Site
302	NB	Lincoln AFB	District
303	NB	Offutt AFB (Bellevue)	District
304	NC	Fort Fisher AFS	Site
305	NC	Dare County AFR	District
306	NC	Pope AFB	District
307	NC	Seymour Johnson AFB	District
308	ND	Minot AFS	Site
309	ND	Cavalier AFS	Site
310	ND	Fortuna AFS	Site
311	ND	Grand Forks AFB	District
312	ND	Finley AFS	District
313	ND	Minot AFB	District
314	ND	Stanley R. Mickelson Safeguard Complex (Nekoma)	District
315	NH	Pease AFB	District
316	NJ	Picatinny Arsenal (Dover)	District
317	NJ	Fort Monmouth	District
318	NJ	Highlands AFS	Site
319	NJ	Palermo ASF	Site
320	NJ	Philadelphia Defense Area	Site
321	NJ	New York Defense Area	Site
322	NJ	McGuire AFB	District
323	NJ	Gibbsboro AFS	District
324	NM	Los Alamos National Laboratory	District
325	NM	Sandia National Laboratories (Albuquerque)	District
326	NM	Continental Divide AFS	Site
327	NM	Las Cruces AFS	Site
328	NM	Moriarty AFS	Site
329	NM	Tierra Amarilla AFS	Site
330	NM	Walker AFB	District

	A	B	C
331	NM	Kirtland AFB	District
332	NM	McGregor Guided Missile Range	Site
333	NM	Cannon AFB	District
334	NM	Melrose AFR	District
335	NM	Holloman AFB	District
336	NV	Fallon AFS	Site
337	NV	Stead AFB	Site
338	NV	Winnemucca AFS	Site
339	NV	Indian Springs AFB	Site
340	NV	Hawthorne Army Depot (Mineral Co.)	District
341	NV	Nevada Test Site (Nye Co.)	Site
342	NV	B-29 Serial No. 45-21847 (Heavy Bomber)	Object
343	NV	Sedan Crater (Nevada Test Site)	Site
344	NV	Nellis AFB (Las Vegas)	District
345	NY	Mitchel AFB	District
346	NY	Hancock Field (Syracuse)	Site
347	NY	Lockport AFS	Site
348	NY	Montauk AFS	Site
349	NY	New York Shoal	Site
350	NY	Saratoga AFS	Site
351	NY	Watertown AFS	Site
352	NY	New York Defense Area	Site
353	NY	Niagara-Buffalo Defense Area	Site
354	NY	Niagara Falls Airport	District
355	NY	Suffolk County AFB	District
356	NY	Plattsburgh AFB	District
357	NY	Stewart AFB	District
358	NY	Griffiss AFB	District
359	OH	Dayton Plant	District
360	OH	Fernald Feed Materials Production Center	District
361	OH	Mound Plant (Miamisburg)	District
362	OH	Portsmouth Gaseous Diffusion Plant (Piketon)	District
363	OH	Scioto Ordnance Works Plant (Marion)	District

	A	B	C
364	OH	Wright-Patterson AFB	District
365	OH	Bellefontaine AFS	Site
366	OH	Brookfield AFS	Site
367	OH	Cincinnati-Dayton Defense Area	Site
368	OH	Cleveland Defense Area	Site
369	OH	Gentile AFS	District
370	OH	Wilkins AFS	District
371	OH	Clinton County AFB	District
372	OH	Rickenbacker ANGB	District
373	OH	Youngstown Airport	District
374	OK	Bartlesville AFS	Site
375	OK	Clinton-Sherman AFB	District
376	OK	Altus AFB	District
377	OK	Vance AFB	District
378	OK	Tinker AFB (Oklahoma City)	District
379	OK	Fort Sill (Lawton)	District
380	OR	Adair AFS	Site
381	OR	Condon AFS	Site
382	OR	Keno AFS	Site
383	OR	Mount Hebo AFS	Site
384	OR	North Bend AFS	Site
385	OR	South-Central Oregon	Site
386	OR	Kingsley Field	District
387	OR	Portland International Airport	District
388	PA	Benton AFS	Site
389	PA	Claysburg AFS	Site
390	PA	Pittsburgh Defense Area	Site
391	PA	Philadelphia Defense Area	Site
392	PA	Olmstead AFB	District
393	PA	Greater Pittsburgh Airport	District
394	Panama	Balboa AFR	District
395	Panama	Howard AFB	District
396	Puerto Rico	Ramey AFB	District

	A	B	C
397	RI	Nantucket Shoal	Site
398	RI	Providence Defense Area	Site
399	SC	Savannah River National Laboratory (Aiken Co.)	District
400	SC	Donaldson AFB	District
401	SC	Myrtle Beach AFB	District
402	SC	Charleston AFB	District
403	SC	Poinsett AFR	District
404	SC	Shaw AFB	District
405	SD	Badlands AFR	District
406	SD	Ellsworth AFB (Rapid City)	District
407	SD	Minuteman Missile National Historic Site	District
408	TN	Clarksville Modification Center (Fort Campbell)	District
409	TN	Oak Ridge National Laboratory	District
410	TN	Lake City AFS	Site
411	TN	Arnold AFB	District
412	TN	Mallory AFS	District
413	TN	McGhee-Tyson Airport	District
414	TN	Tower Shielding Facility (Oak Ridge)	Structure
415	TX	Medina Modification Center (Lackland AFB, San Antonio)	District
416	TX	Fargo	Structure
417	TX	Duncanville AFS	Site
418	TX	Eldorado AFS	Site
419	TX	Laredo AFS	Site
420	TX	Dallas-Fort Worth Defense Area	Site
421	TX	Biggs AFB	District
422	TX	Carswell AFB	District
423	TX	Gray AFB	District
424	TX	Abilene	Structure
425	TX	Albany	Structure
426	TX	Anson	Structure
427	TX	Bradshaw	Structure
428	TX	Clyde	Structure
429	TX	Corinth	Structure

	A	B	C
430	TX	Denton Community	Structure
431	TX	Lawn	Structure
432	TX	Nolan	Structure
433	TX	Oplin	Structure
434	TX	Shep	Structure
435	TX	Winters	Structure
436	TX	Fort Sam Houston (San Antonio)	District
437	TX	Eagle Pass Radar Site (Maverick Co.)	District
438	TX	Lake Kickapoo Air Force Space Surveillance Station (Archer Co.)	District
439	TX	PAVE PAWS Radar Site (San Angelo)	District
440	TX	Relocatable Over The Horizon Radar (ROTHR) Site (McMullen Co.)	District
441	TX	Pyote AFB (Ward Co.)	District
442	TX	Beeville AFB	District
443	TX	Connally AFB (Waco)	District
444	TX	Foster AFB (Victoria)	District
445	TX	Goodfellow AFB (San Angelo)	District
446	TX	Harlington AFB	District
447	TX	Moore AFB (Mission)	District
448	TX	Naval Air Station Corpus Christi	District
449	TX	Naval Air Station Kingsville	District
450	TX	Naval Station Ingleside (Corpus Christi)	District
451	TX	Reese AFB (Lubbock)	District
452	TX	Lackland AFB (San Antonio)	District
453	TX	Amarillo AFB	District
454	TX	Perrin AFB (Sherman)	District
455	TX	Sheppard AFB (Wichita Falls)	District
456	TX	Webb AFB	District
457	TX	Kelly AFB (San Antonio)	District
458	TX	Brooks AFB (San Antonio)	District
459	TX	Randolph AFB (San Antonio)	District
460	TX	Air Force Plant 4 (Fort Worth)	District
461	TX	Lone Star Army Ammunition Plant/Red River Army Depot (Texarkana)	District
462	TX	Longhorn Army Ammunition Plant (Kamack)	District

	A	B	C
463	TX	Naval Weapons Industrial Reserve Plant (Dallas)	District
464	TX	Naval Weapons Industrial Reserve Plant (McGregor)	District
465	TX	PANTEX Plant (Amarillo)	District
466	TX	Alvarado	Site
467	TX	Austin	Site
468	TX	Denton	Site
469	TX	Elroy	Site
470	TX	Terrell	Site
471	TX	Sweetwater AFS	District
472	TX	Fort Wolters (Mineral Wells)	District
473	TX	Stennis Space Center (Hancock Co.)	District
474	TX	Bergstrom AFB (Austin)	District
475	TX	Laughlin AFB (Del Rio)	District
476	TX	Naval Air Station Fort Worth Joint Reserve Base Carswell Field	District
477	TX	Ellington AFB (Houston)	District
478	TX	Dyess AFB (Abilene)	District
479	TX	Fort Hood (Killeen)	District
480	TX	Fort Bliss (El Paso)	District
481	UT	Hill AFB (Salt Lake City)	District
482	UT	Utah Test and Training Range	Site
483	VA	Fort Monroe	District
484	VA	Cape Charles AFS	Site
485	VA	Fort Lee	Site
486	VA	Quantico AFS	Site
487	VA	Washington Defense Area	Site
488	VA	Norfolk Defense Area	Site
489	VA	Langley AFB	District
490	VA	Vint Hill Farms Station	District
491	VA	Norfolk Naval Shipyard (Portsmouth)	District
492	VA	Little Creek Amphibious Naval Base (Virginia Beach)	District
493	VA	Naval Station Norfolk	District
494	VA	Craney Island Naval Fuel Depot	District
495	VA	Yorktown Naval Weapons Station	District

	A	B	C
496	VA	Oceana Naval Air Station	District
497	VA	Dahlgren Naval Surface Warfare Center	District
498	VA	Mount Weather Emergency Operations Center (Bluemont, Loudoun Co.)	District
499	VT	Alburg	Structure
500	VT	Swanton	Structure
501	VT	Saint Albans AFS	Site
502	VT	Ethan Allen AFB	District
503	WA	Hanford Plant	District
504	WA	Blaine AFS	Site
505	WA	Colville AFS	Site
506	WA	Curlew AFS	Site
507	WA	Makah AFS	Site
508	WA	Naselle AFS	Site
509	WA	Neah Bay AFS	Site
510	WA	Othello AFS	Site
511	WA	Seattle Defense Area	Site
512	WA	Hanford Defense Area	Site
513	WA	Geiger AFB	District
514	WA	Paine AFB	District
515	WA	Larson AFB	District
516	WA	McChord AFB	District
517	WA	Fairchild AFB	District
518	WI	Antigo AFS	Site
519	WI	Osceola AFS	Site
520	WI	Williams Bay AFS	Site
521	WI	Milwaukee Defense Area	Site
522	WV	Guthrie AFS	Site
523	WV	Congressional Relocation Facility, Greenbrier Hotel (White Sulphur Springs)	Building
524	WV	Wullenweber Circularly Disposed Antenna Array (Pendleton Co.)	Site
525	WV	Allegany Ballistics Laboratory	District
526	WY	Sundance Nuclear Power Station	District
527	WY	Francis E. Warren AFB (Cheyenne)	District

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1	CREATOR/OWNER
2	U.S. Army
3	U.S. Air Force
4	U.S. Air Force
5	U.S. Air Force
6	U.S. Air Force
7	U.S. Air Force
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28	U.S. Air Force
29	U.S. Army
30	U.S. Army
31	U.S. Air Force
32	U.S. Air Force
33	U.S. Air Force

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34	U.S. Air Force
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86	U.S. Air Force
87	U.S. Air Force
88	U.S. Air Force
89	U.S. Air Force
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91	U.S. Department of Energy
92	NASA
93	NASA
94	U.S. Air Force
95	U.S. Air Force
96	U.S. Air Force
97	U.S. Air Force
98	U.S. Air Force
99	U.S. Air Force

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100	U.S. Air Force
101	U.S. Air Force
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107	U.S. Air Force
108	U.S. Army
109	U.S. Army
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126	U.S. Air Force
127	U.S. Air Force
128	U.S. Air Force
129	U.S. Air Force
130	U.S. Air Force
131	U.S. Air Force
132	Rocky Flats NWF

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133	Rocky Mountain Arsenal NWF
134	U.S. Army
135	U.S. Air Force
136	U.S. Air Force
137	U.S. Army
138	U.S. Army
139	U.S. Army
140	U.S. Navy
141	U.S. Forest Service
142	Talcott Mountain Service Center
143	Church and elderly housing
144	USAR Center
145	Town of Fairfield
146	Town of Manchester
147	Town of Milford
148	Residential/Industrial
149	Meskomasic State Forest
150	U.S. Army
151	Town of West Haven
152	Town of Westport
153	U.S. Air Force
154	U.S. Air Force
155	U.S. Air Force
156	
157	U.S. Army
158	U.S. Air Force
159	U.S. Air Force
160	U.S. Air Force
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162	U.S. Air Force
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164	U.S. Air Force
165	U.S. Air Force

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166	U.S. Air Force
167	U.S. Air Force
168	U.S. Army
169	U.S. Air Force
170	U.S. Air Force
171	U.S. Air Force
172	U.S. Air Force
173	U.S. Army
174	U.S. Army
175	U.S. Army
176	U.S. Army
177	U.S. Marine Corps
178	U.S. Navy
179	U.S. Navy
180	U.S. Air Force
181	U.S. Air Force
182	U.S. Air Force
183	U.S. Air Force
184	U.S. Army
185	U.S. Navy
186	U.S. Navy
187	USMC
188	U.S. Navy
189	U.S. Navy
190	U.S. Air Force
191	U.S. Army
192	USMC
193	USMC
194	USMC
195	USMC
196	USMC
197	U.S. Army
198	

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199	U.S. Air Force
200	U.S. Air Force
201	U.S. Army
202	U.S. Air Force
203	U.S. Air Force
204	U.S. Air Force
205	U.S. Air Force
206	Department of Energy
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208	U.S. Air Force
209	U.S. Air Force
210	U.S. Army
211	U.S. Army
212	U.S. Air Force
213	U.S. Air Force
214	U.S. Air Force
215	U.S. Army
216	U.S. Army
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218	U.S. Air Force
219	U.S. Army
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229	U.S. Army
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231	U.S. Air Force

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232	U.S. Air Force
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239	U.S. Army
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241	U.S. Air Force
242	U.S. Air Force
243	U.S. Navy
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248	U.S. Army
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264	U.S. Air Force

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265	U.S. Army
266	U.S. Air Force
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268	U.S. Air Force
269	U.S. Air Force
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275	U.S. Air Force
276	U.S. Army
277	U.S. Air Force
278	U.S. Air Force
279	U.S. Department of Energy
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281	U.S. Air Force
282	U.S. Air Force
283	U.S. Army
284	U.S. Army
285	U.S. Air Force
286	U.S. Air Force
287	U.S. Air Force
288	U.S. Air Force
289	U.S. Navy
290	U.S. Air Force
291	State of Mississippi
292	U.S. Air Force
293	U.S. Air Force
294	U.S. Air Force
295	U.S. Air Force
296	U.S. Air Force
297	U.S. Air Force

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298	U.S. Air Force
299	U.S. Air Force
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301	U.S. Air Force
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313	U.S. Air Force
314	U.S. Army
315	U.S. Air Force
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317	U.S. Army
318	U.S. Air Force
319	U.S. Air Force
320	U.S. Army
321	U.S. Army
322	U.S. Air Force
323	U.S. Air Force
324	U.S. Department of Energy
325	U.S. Department of Energy
326	U.S. Air Force
327	U.S. Air Force
328	U.S. Air Force
329	U.S. Air Force
330	U.S. Air Force

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331	U.S. Air Force
332	U.S. Army
333	U.S. Air Force
334	U.S. Air Force
335	U.S. Air Force
336	U.S. Air Force
337	U.S. Air Force
338	U.S. Air Force
339	U.S. Air Force
340	U.S. Army
341	U.S. Department of Energy
342	U.S. Air Force
343	U.S. Department of Energy
344	U.S. Air Force
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352	U.S. Army
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364	U.S. Air Force
365	U.S. Air Force
366	U.S. Air Force
367	U.S. Army
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369	U.S. Air Force
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379	U.S. Army
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390	U.S. Army
391	U.S. Army
392	U.S. Air Force
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394	U.S. Air Force
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396	U.S. Air Force

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397	U.S. Air Force
398	U.S. Army
399	U.S. Department of Energy
400	U.S. Air Force
401	U.S. Air Force
402	U.S. Air Force
403	U.S. Air Force
404	U.S. Air Force
405	U.S. Air Force
406	U.S. Air Force
407	NPS
408	
409	U.S. Department of Energy
410	U.S. Air Force
411	U.S. Air Force
412	U.S. Air Force
413	U.S. Air Force
414	Department of Energy
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416	U.S. Air Force
417	U.S. Air Force
418	U.S. Air Force
419	U.S. Air Force
420	U.S. Army
421	U.S. Air Force
422	U.S. Air Force
423	U.S. Air Force
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436	U.S. Army
437	U.S. Air Force
438	U.S. Navy
439	U.S. Air Force
440	U.S. Navy
441	West Texas Children's Home; U. of Texas
442	
443	State of Texas
444	Victoria County Airport
445	U.S. Air Force
446	Rio Grande Valley International Airport
447	U.S. Department of Agriculture
448	U.S. Navy
449	U.S. Navy
450	U.S. Navy
451	Texas Tech University?
452	U.S. Air Force
453	U.S. Air Force
454	U.S. Air Force
455	U.S. Air Force
456	Big Spring Industrial Park
457	U.S. Air Force
458	U.S. Air Force & City of Brooks
459	U.S. Air Force
460	U.S. Air Force
461	U.S. Army
462	U.S. Army

	D
463	U.S. Navy
464	City of McGregor
465	U.S. Department of Energy
466	
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471	City of Sweetwater
472	Weatherford College Education Center
473	NASA
474	U.S. Air Force
475	U.S. Air Force
476	U.S. Navy
477	U.S. Air Force
478	U.S. Air Force
479	U.S. Army
480	U.S. Army
481	U.S. Air Force
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488	U.S. Army
489	U.S. Air Force
490	U.S. Army
491	U.S. Navy
492	U.S. Navy
493	U.S. Navy
494	U.S. Navy
495	U.S. Navy

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496	U.S. Navy
497	U.S. Navy
498	FEMA
499	U.S. Air Force
500	U.S. Air Force
501	U.S. Air Force
502	U.S. Air Force
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504	U.S. Air Force
505	U.S. Air Force
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511	U.S. Army
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518	U.S. Air Force
519	U.S. Air Force
520	U.S. Air Force
521	U.S. Army
522	U.S. Air Force
523	Greenbrier Hotel
524	U.S. Navy
525	U.S. Navy
526	U.S. Air Force
527	U.S. Air Force

	E	F
1	SITE TYPE	IDENTIFICATION NUMBER
2	Training Facility	
3	Flight Training Facility; Strategic & Tactical Aircraft Site	
4	Defensive Radar Network	
5	Defensive Radar Network	
6	Defensive Radar Network	
7	Defensive Radar Network	
8	Defensive Radar Network	
9	Defensive Radar Network	
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23	Defensive Radar Network	
24	Defensive Radar Network	
25	Defensive Radar Network	
26	Defensive Radar Network	
27	Defensive Radar Network	
28	Defensive Radar Network	
29	Nike Missile Sites (3)	
30	Nike Missile Sites (5)	
31	Strategic & Tactical Aircraft Site	
32	Strategic & Tactical Aircraft Site	
33	White Alice Communications System	

	E	F
34	White Alice Communications System	
35	White Alice Communications System	
36	White Alice Communications System	
37	White Alice Communications System	
38	White Alice Communications System	
39	White Alice Communications System	
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52	White Alice Communications System	
53	White Alice Communications System	
54	White Alice Communications System	
55	White Alice Communications System	
56	White Alice Communications System	
57	White Alice Communications System	
58	Defensive Radar Test Site	
59	Defensive Radar Test Site	
60	Defensive Radar Test Site	
61	Storage Facility	
62	Storage Facility	
63	Test Facility (SAGE-Bomarc)	
64	Training Facility	
65	Titan II Missile Site	WH2346
66	Titan II Missile Site	FA1221

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67	Titan II Missile Site	VB0050
68	Strategic & Tactical Aircraft Site	
69	Titan II Missile Site	FA1219
70	Titan II Missile Site	WH2341
71	Titan II Missile Site	WH2348
72	Titan II Missile Site	WH2342
73	Titan II Missile Site	WH2343
74	Titan II Missile Site	WH2344
75	Titan II Missile Site	FA1220
76	Titan II Missile Site	CN0196
77	Titan II Missile Site	CN0197
78	Titan II Missile Site	FA1222
79	Titan II Missile Site	FA1223
80	Titan II Missile Site	CN0078
81	Titan II Missile Site	CE0077
82	Titan II Missile Site	CN0182
83	Titan II Missile Site	CN0183
84	Training Facility; Strategic & Tactical Aircraft Site	
85	Missile Site	
86	Manufacturing Facility	
87	Training Facility; Defensive Radar Network	
88	Training Facility; Defensive Radar Network	
89	Strategic & Tactical Aircraft Site; Flight Training Facility; Titan II Missile Sites	
90	Manufacturing Facility	
91	Research & Development	
92	Strategic & Tactical Aircraft Test Site	
93	Strategic & Tactical Aircraft Test Site	
94	Defensive Radar Network	
95	Defensive Radar Network	
96	Defensive Radar Network	
97	Defensive Radar Network	
98	Defensive Radar Network	
99	Defensive Radar Network	

	E	F
100	Defensive Radar Network	
101	Defensive Radar Network	
102	Defensive Radar Network	
103	Defensive Radar Network; Storage Facility	
104	Defensive Radar Network; Strategic & Tactical Aircraft Site	
105	Defensive Radar Network; Strategic & Tactical Aircraft Site	
106	Manufacturing Facility	
107	Missile Sites (Thor, Atlas, Titan, Minuteman, Peacekeeper Rail Garrison)	
108	Nike Missile Sites (12)	
109	Nike Missile Sites (16)	
110	Storage Facility	
111	Storage Facility	
112	Strategic & Tactical Aircraft Site	
113	Strategic & Tactical Aircraft Site	
114	Strategic & Tactical Aircraft Site	
115	Test Facility (aircraft and missile engines)	
116	Test Facility (missile engines)	
117	Test Facility (space systems & missile development)	
118	Command & Control; Strategic & Tactical Aircraft Site; Nike Missile Sites (4)	
119	Strategic & Tactical Aircraft Site; Flight Training Facility	
120	Strategic & Tactical Aircraft Site; Flight Training Facility	
121	Strategic & Tactical Aircraft Site; Flight Training Facility; Titan I Missile Sites	
122	Atlas FICBM Silo	
123	Atlas FICBM Silo	
124	Atlas FICBM Silo	
125	Atlas FICBM Silo	
126	Atlas FICBM Silo	
127	Command & Control	
128	Defensive Radar Network	
129	Minuteman Missile Sites (3)	
130	Training Facility	
131	Command & Control	
132	Manufacturing Facility	

	E	F
133	Manufacturing Facility	
134	Storage Facility	
135	Strategic & Tactical Aircraft Site	
136	Strategic & Tactical Aircraft Site; Titan I Sites (2)	
137	Training Facility	
138	Nike Missile Sites (6)	
139	Nike Missile Sites (6)	
140	First Atomic-Powered Submarine	SSN-571
141	Nike Missile Site	BR-04
142	Nike Missile Site	HA-85
143	Nike Missile Site	HA-48
144	Nike Missile Site	HA-08
145	Nike Missile Site	BR-65
146	Nike Missile Site	HA-25
147	Nike Missile Site	BR-17
148	Nike Missile Site	HA-67
149	Nike Missile Site	HA-36
150	Nike Missile Site	BR-94
151	Nike Missile Site	BR-15
152	Nike Missile Site	BR-73
153	Command & Control; Strategic & Tactical Aircraft Site	
154	Strategic & Tactical Aircraft Site	
155	Command & Control; Strategic & Tactical Aircraft Site	
156	Manufacturing Facility	
157	Nike Missile Site	
158	Defensive Radar Network	
159	Defensive Radar Network	
160	Strategic & Tactical Aircraft Site	
161	Strategic & Tactical Aircraft Site; Defensive Radar Network; Test Site	
162	Training Facility	
163	Strategic & Tactical Aircraft Site; Flight Training Facility	
164	Strategic & Tactical Aircraft Site; Flight Training Facility	
165	Strategic & Tactical Aircraft Site; Flight Training Facility; Defensive Radar Network	

	E	F
166	Strategic & Tactical Aircraft Site; Flight Training Facility; Missile Site	
167	Flight Training Facility	
168	Flight Training Facility	
169	Flight Training Facility	
170	Flight Training Facility; Strategic & Tactical Aircraft Site; Nike Missile Sites (2)	
171	Strategic & Tactical Aircraft Site; Flight Training Facility	
172	Strategic & Tactical Aircraft Site; Flight Training Facility	
173	Training Facility	
174	Training Facility	
175	Training Facility	
176	Training Facility	
177	Training Facility	
178	Training Facility	
179	Training Facility	
180	Manufacturing Facility	
181	Strategic & Tactical Aircraft Site; Nike Missile Sites (2)	
182	Command & Control; Strategic & Tactical Aircraft Site	
183	Nike Missile Sites (2)	
184	Nike Missile Sites (4)	
185	Communication & Command Center	
186	Defensive Radar Network	
187	Missile Range	
188	Naval Station	
189	Storage Facility	
190	Strategic & Tactical Aircraft Site	
191	Strategic & Tactical Aircraft Site	
192	Training Facility	
193	Training Facility	
194	Training Facility	
195	Training Facility	
196	Training Facility	
197	Training Facility	
198	Manufacturing Facility	

	E	F
199	Atlas FICBM Silo	
200	Defensive Radar Network	
201	Nike Missile Sites (3)	
202	Strategic & Tactical Aircraft Site	
203	Atlas FICBM Silo	
204	Strategic & Tactical Aircraft Site; Flight Training Facility	
205	Strategic & Tactical Aircraft Site; Flight Training Facility; Titan I Missile Sites	
206	Test Facility	
207	Manufacturing Facility	
208	Defensive Radar Network	
209	Defensive Radar Network	
210	Nike Missile Sites (16)	
211	Nike Missile Sites (3)	
212	Strategic & Tactical Aircraft Site	
213	Training Facility	
214	Command & Control; Strategic & Tactical Aircraft Site	
215	ICBM Missile Site; Silos	
216	ICBM Missile Site; Silos	
217	Manufacturing Facility	
218	Defensive Radar Network	
219	Nike Missile Sites (1)	
220	Nike Missile Sites (5)	
221	Strategic & Tactical Aircraft Site	
222	Defensive Radar Network	
223	Defensive Radar Network	
224	Nike Missile Sites (4)	
225	Storage Facility	
226	Strategic & Tactical Aircraft Site; Atlas Missile Sites	
227	Strategic & Tactical Aircraft Site; Atlas Missile Sites; Nike Missile Sites	
228	Strategic & Tactical Aircraft Site; Flight Training Facility; Titan II Missile Sites	
229	Storage Facility	
230	Manufacturing Facility	
231	Command & Control; Strategic & Tactical Aircraft Site	

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232	Defensive Radar Network	
233	Command & Control; Defensive Radar Network	
234	Command & Control; Strategic & Tactical Aircraft Site	
235	Defensive Radar Network; Test Site	
236	Strategic & Tactical Aircraft Site; Flight Training Facility; Nike Missile Sites (2)	
237	Defensive Radar Network	
238	Defensive Radar Network	
239	Nike Missile Sites (11)	
240	Nike Missile Sites (7)	
241	Strategic & Tactical Aircraft Site; Missile Site	
242	Strategic & Tactical Aircraft Site; Test Site	
243	Manufacturing Facility	
244	Manufacturing Facility	
245	Missile Site	
246	Nike Missile Site	
247	Strategic & Tactical Aircraft Site; Training Facility	
248	Training Facility	
249	Training Facility	
250	Nike Missile Sites (16)	
251	Command & Control; Strategic & Tactical Aircraft Site	
252	Command & Control; Strategic & Tactical Aircraft Site	
253	Defensive Radar Network	
254	Defensive Radar Network	
255	Defensive Radar Network	
256	Defensive Radar Network	
257	Defensive Radar Network	
258	Strategic & Tactical Aircraft Site; Missile Site	
259	Strategic & Tactical Aircraft Site; Flight Training Facility; Nike Missile Sites (4)	
260	Defensive Radar Network	
261	Defensive Radar Network	
262	Defensive Radar Network	
263	Defensive Radar Network	
264	Defensive Radar Network	

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265	Nike Missile Sites (14)	
266	Strategic & Tactical Aircraft Site	
267	Strategic & Tactical Aircraft Site	
268	Strategic & Tactical Aircraft Site; Defensive Radar Network	
269	Strategic & Tactical Aircraft Site; Flight Training Facility	
270	Strategic & Tactical Aircraft Site; Flight Training Facility; Defensive Radar Network	
271	Defensive Radar Network	
272	Defensive Radar Network	
273	Defensive Radar Network	
274	Defensive Radar Network	
275	Defensive Radar Network	
276	Nike Missile Sites (4)	
277	Strategic & Tactical Aircraft Site	
278	Strategic & Tactical Aircraft Site; Defensive Radar Network	
279	Manufacturing Facility	
280	Manufacturing Facility	
281	Defensive Radar Network	
282	Defensive Radar Network	
283	Nike Missile Sites (4)	
284	Nike Missile Sites (4)	
285	Strategic & Tactical Aircraft Site; Defensive Radar Network	
286	Strategic & Tactical Aircraft Site; Flight Training Facility; Minuteman Missile Sites	
287	Defensive Radar Network; Test Site	
288	Training Facility	
289	Defensive Radar Network	
290	Strategic & Tactical Aircraft Site; Flight Training Facility	
291	Training Facility	
292	Defensive Radar Network	
293	Defensive Radar Network	
294	Defensive Radar Network	
295	Defensive Radar Network	
296	Strategic & Tactical Aircraft Site	
297	Strategic & Tactical Aircraft Site; Missile Site; Defensive Radar Network	

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298	Strategic & Tactical Aircraft Site; Flight Training Facility; Defensive Radar Network	
299	Atlas FICBM Silo	
300	Defensive Radar Network	
301	Minuteman Missile Sites (3)	
302	Strategic & Tactical Aircraft Site; Atlas Missile Sites; Nike Missile Sites	
303	Command & Control; Atlas Missile Sites; Nike Missile Site	
304	Defensive Radar Network	
305	Strategic & Tactical Aircraft Site; Flight Training Facility	
306	Strategic & Tactical Aircraft Site; Flight Training Facility	
307	Strategic & Tactical Aircraft Site; Flight Training Facility	
308	Defensive Radar Network	
309	Defensive Radar Network	
310	Defensive Radar Network	
311	Command & Control; Strategic & Tactical Aircraft Site; Minuteman Missile Sites	
312	Strategic & Tactical Aircraft Site; Flight Training Facility; Defensive Radar Network	
313	Strategic & Tactical Aircraft Site; Flight Training Facility; Minuteman Missile Sites	
314	Defensive Radar; Spartan & Sprint Missile Silos	
315	Strategic & Tactical Aircraft Site	
316	Manufacturing Facility	
317	Research & Development	
318	Defensive Radar Network	
319	Defensive Radar Network	
320	Nike Missile Sites (5)	
321	Nike Missile Sites (9)	
322	Missile Site; Strategic & Tactical Aircraft Site; Flight Training Facility	
323	Strategic & Tactical Aircraft Site; Flight Training Facility	
324	Research & Development	
325	Research & Development	
326	Defensive Radar Network	
327	Defensive Radar Network	
328	Defensive Radar Network	
329	Defensive Radar Network	
330	Strategic & Tactical Aircraft Site; Atlas Missile Sites; Nike Missile Sites	

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331	Strategic & Tactical Aircraft Site; Missile Site; Defensive Radar Network; Test Facility	
332	Test Facility	
333	Strategic & Tactical Aircraft Site; Flight Training Facility	
334	Strategic & Tactical Aircraft Site; Flight Training Facility	
335	Strategic & Tactical Aircraft Site; Flight Training Facility; Test Facility	
336	Defensive Radar Network	
337	Defensive Radar Network	
338	Defensive Radar Network	
339	Test Facility	
340	Storage Facility	
341	Test Facility	
342	Aircraft	
343	Test Facility	
344	Training Facility	
345	Command & Control	
346	Defensive Radar Network	
347	Defensive Radar Network	
348	Defensive Radar Network	
349	Defensive Radar Network	
350	Defensive Radar Network	
351	Defensive Radar Network	
352	Nike Missile Sites (10)	
353	Nike Missile Sites (7)	
354	Strategic & Tactical Aircraft Site	
355	Strategic & Tactical Aircraft Site	
356	Strategic & Tactical Aircraft Site; Atlas Missile Sites	
357	Strategic & Tactical Aircraft Site; Defensive Radar Network	
358	Strategic & Tactical Aircraft Site; Flight Training Facility; Test Facility; Storage Facility	
359	Manufacturing Facility	
360	Manufacturing Facility	
361	Manufacturing Facility	
362	Manufacturing Facility	
363	Manufacturing Facility	

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364	Command & Control; Strategic & Tactical Aircraft Site	
365	Defensive Radar Network	
366	Defensive Radar Network	
367	Nike Missile Sites (4)	
368	Nike Missile Sites (8)	
369	Storage Facility	
370	Storage Facility	
371	Strategic & Tactical Aircraft Site	
372	Strategic & Tactical Aircraft Site	
373	Strategic & Tactical Aircraft Site	
374	Defensive Radar Network	
375	Strategic & Tactical Aircraft Site	
376	Strategic & Tactical Aircraft Site; Atlas Missile Sites	
377	Training Facility	
378	Strategic & Tactical Aircraft Site; Communication & Command Center; Defensive Radar Site	
379	Training Facility; Tactical Nuclear Weapons Development	
380	Defensive Radar Network	
381	Defensive Radar Network	
382	Defensive Radar Network	
383	Defensive Radar Network	
384	Defensive Radar Network	
385	Defensive Radar Network	
386	Strategic & Tactical Aircraft Site	
387	Strategic & Tactical Aircraft Site	
388	Defensive Radar Network	
389	Defensive Radar Network	
390	Nike Missile Sites (12)	
391	Nike Missile Sites (7)	
392	Storage Facility	
393	Strategic & Tactical Aircraft Site	
394	Strategic & Tactical Aircraft Site; Flight Training Facility	
395	Strategic & Tactical Aircraft Site; Flight Training Facility	
396	Strategic & Tactical Aircraft Site	

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397	Defensive Radar Network	
398	Nike Missile Sites (12)	
399	Research & Development	
400	Strategic & Tactical Aircraft Site	
401	Strategic & Tactical Aircraft Site	
402	Command & Control; Strategic & Tactical Aircraft Site	
403	Strategic & Tactical Aircraft Site; Flight Training Facility	
404	Strategic & Tactical Aircraft Site; Flight Training Facility	
405	Strategic & Tactical Aircraft Site; Flight Training Facility	
406	Training Facility; Strategic & Tactical Aircraft Site; Titan I Missile Sites; Minuteman Missile Site	
407	Minuteman Missile Site; Silos	
408	Manufacturing Facility	
409	Research & Development	
410	Defensive Radar Network	
411	Research & Development; Test Facility	
412	Storage Facility	
413	Strategic & Tactical Aircraft Site	
414	Test Facility	
415	Manufacturing Facility	
416	Atlas FICBM Silo	
417	Defensive Radar Network	
418	Defensive Radar Network	
419	Defensive Radar Network	
420	Nike Missile Sites (4)	
421	Strategic & Tactical Aircraft Site	
422	Strategic & Tactical Aircraft Site	
423	Strategic & Tactical Aircraft Site	
424	Atlas FICBM Silo	578-1
425	Atlas FICBM Silo	578-2
426	Atlas FICBM Silo	578-11
427	Atlas FICBM Silo	578-7
428	Atlas FICBM Silo	578-3
429	Atlas FICBM Silo	578-12

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430	Atlas FICBM Silo	578-4
431	Atlas FICBM Silo	578-6
432	Atlas FICBM Silo	578-10
433	Atlas FICBM Silo	578-5
434	Atlas FICBM Silo	578-9
435	Atlas FICBM Silo	578-8
436	Communication & Command Center	
437	Defensive Radar Network	
438	Defensive Radar Network	
439	Defensive Radar Network	
440	Defensive Radar Network	
441	Defensive Radar Network; Strategic & Tactical Aircraft Site	
442	Flight Training Facility	
443	Flight Training Facility	
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448	Flight Training Facility	
449	Flight Training Facility	
450	Flight Training Facility	
451	Flight Training Facility	
452	Flight Training Facility; Defensive Radar Network	
453	Flight Training Facility; Strategic & Tactical Aircraft Site	
454	Flight Training Facility; Strategic & Tactical Aircraft Site	
455	Flight Training Facility; Strategic & Tactical Aircraft Site	
456	Flight Training Facility; Strategic & Tactical Aircraft Site	
457	Flight Training Facility; Strategic & Tactical Aircraft Site; Storage Facility	
458	Flight Training Facility; Test Facility	
459	Flight Training Facility; Test Facility	
460	Manufacturing Facility	
461	Manufacturing Facility	
462	Manufacturing Facility	

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463	Manufacturing Facility	
464	Manufacturing Facility	
465	Manufacturing Facility	
466	Nike Missile Site	
467	Nike Missile Site	
468	Nike Missile Site	
469	Nike Missile Site	
470	Nike Missile Site	
471	Nike Missile Site; Atlas FICBM Silo; Training Facility	
472	Nike Missile Site; Flight Training Facility	
473	Rocket Test Facility	
474	Strategic & Tactical Aircraft Site; Nike Missile Sites (2)	
475	Strategic & Tactical Aircraft Site; Training Facility	
476	Strategic & Tactical Aircraft Site; Training Facility	
477	Strategic & Tactical Aircraft Site; Training Facility; Defensive Radar Network	
478	Strategic & Tactical Aircraft Site; Nike Missile Sites (2); Atlas Missile Sites	
479	Strategic & Tactical Aircraft Site; Training Facility	
480	Nike Missile Site; Atlas FICBM Silo; Training Facility	
481	Test Facility	
482	Test Facility	
483	Command & Control (CONARC HQ)	
484	Defensive Radar Network	
485	Defensive Radar Network	
486	Defensive Radar Network	
487	Nike Missile Sites (3)	
488	Nike Missile Sites (8)	
489	Strategic & Tactical Aircraft Site; Flight Training Facility	
490	Communications Research & Development; Storage Facility	
491	Manufacturing Facility	
492	Naval Station	
493	Naval Station	
494	Storage Facility	
495	Storage Facility	

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496	Strategic & Tactical Aircraft Site	
497	Training Facility	
498	Communication & Command Center	
499	Atlas FICBM Silo	
500	Atlas FICBM Silo	
501	Defensive Radar Network	
502	Strategic & Tactical Aircraft Site	
503	Manufacturing Facility	
504	Defensive Radar Network	
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510	Defensive Radar Network	
511	Nike Missile Sites (11)	
512	Nike Missile Sites (4)	
513	Strategic & Tactical Aircraft Site	
514	Strategic & Tactical Aircraft Site	
515	Strategic & Tactical Aircraft Site; Defensive Radar Network	
516	Command & Control; Strategic & Tactical Aircraft Site; Defensive Radar Network	
517	Strategic & Tactical Aircraft Site; Flight Training Facility, Atlas Missile Sites; Nike Missile Sites (4)	
518	Defensive Radar Network	
519	Defensive Radar Network	
520	Defensive Radar Network	
521	Nike Missile Sites (8)	
522	Defensive Radar Network	
523	Communication & Command Center	
524	Defensive Radar Network	
525	Manufacturing Facility	
526	Manufacturing Facility	
527	ICBM Missile Sites; Silos; Training Facility; Test Range	

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303	Langley AFB Library CD & www.nebraskahistory.org; cultural resources survey report
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314	www.coldwar-c4i.net (A Secret Landscape)
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316	Charles R. Loeber, *Building the Bombs* (2005)
317	http://www.infoage.org/html/contents-crr.html
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407	www.nps.gov/mimi
408	Charles R. Loeber, *Building the Bombs* (2005)
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479	SHPO; http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA485337&Location=U2&doc=GetTRDoc.pdf
480	SHPO; https://www.bliss.army.mil/dpw/Environmental/documents/ICRMP_Volume%20I%20_PUBLIC.pdf;http://www.cecer.army.mil/techreports/EF
481	Karen J. Weitze Research, Stockton, CA
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483	http://www.dhr.virginia.gov/registers/Cities/Hampton/114-0002_%20Fort_Monroe_1972_Final_Nomination.pdf
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