

The airmen assigned to airborne nuclear alert faced a difficult and deadly serious mission.



# The Perils of Chrome Dome

By Rebecca Grant



**O**n Jan. 16, 1966, a B-52G—call sign Tea 16—departed Seymour Johnson AFB, N.C. The crew completed two refuelings and an orbit near Turkey. Refueling No. 3, on Jan. 17, was their last act.

For some reason, the bomber was a little too fast. The KC-135's boom struck the B-52's longeron, and the left wing of the bomber snapped off.

Four nuclear weapons were released. Three of the bombs fell with the B-52 wreckage near the village of Palomares on Spain's Mediterranean coast. The first was located near the beach. Another dug deep into a tomato field, while the third landed near a cemetery. The dirt dampened the plutonium, which escaped from the damaged bombs. USAF teams

raced to dig the bombs out and haul away tons of radioactive dirt.

The fourth bomb, however, was missing. The US Navy sent more than 30 ships and the submersible vessel *Alvin* to scour the sea floor. Finally, 11 weeks after the accident, USS *Petrel* lifted the fourth Mk 28 aboard just before 8 a.m. on April 7.

The nuclear bomb looked to be in pretty good shape for having spent 80 days in salt water. The tail was slashed in two places. The bomb's nose had one large dent and four smaller ones. Luckily, the switch was still in the "safe" position.

Quickly crews on the deck of the recovery ship taped over the bomb's serial number and markings. Those had been orders directly from Secretary of

*Above: A B-52 with AGM-28 missiles takes off. Right: Spanish officials, US Rear Adm. William Guest, commander of the US Naval Task Force, and USAF Maj. Gen. Delmar Wilson, 16th Air Force commander, examine the nuclear bomb recovered from the sea near Palomares, Spain.*

Defense Robert S. McNamara. Then, Spanish officials inspected the bomb, while press photographers took pictures.

There was just one problem that morning in April 1966. The warhead cover wouldn't budge. After a good pounding, the jammed warhead cover came open and the bomb was made safe for transport back to the US.

More than 1,600 USAF personnel worked on the Palomares cleanup. The Air Force tracked a group of individu-



als known as the “High 26,” potentially exposed to more serious levels of plutonium. As late as 2001, the Air Force again reviewed contamination sampling records and concluded exposure had been minimal.

The Palomares incident was the denouement of Strategic Air Command’s nightmare: a bomber down, with nuclear weapons aboard. All told, Air Force aircraft were involved in a total of 25 nuclear weapons accidents from Feb. 13, 1950, through Jan. 22, 1968. Some were alert missions, others training and ferry flights. But by far the most harrowing moments came from the activities of line B-52s flying airborne alert missions under the name Operation Chrome Dome.

### 24-Hour Missions

SAC Commander Gen. Thomas S. Power was the architect of Chrome Dome. In its main phase from 1961 to 1968, it was a daring assertion of airborne nuclear deterrence. Power was a bomber pilot who’d seen extensive combat in World War II beginning with missions from North Africa in B-24s, then B-29s in the Pacific. At SAC he was vice commander under Gen. Curtis E. LeMay then headed SAC himself from July 1957 to November 1964.

Power began regular airborne alerts in 1958. Fully armed bombers in the air could guarantee a second-strike response even if a Soviet first strike knocked out SAC airfields.



The B-52s on Chrome Dome missions flew two typical profiles. One stretched south across the Atlantic to a refueling over the Mediterranean Sea. The other was a northern route tracing a big box around Canada with a crucial late air refueling near Alaska.

By early 1961, more than 6,000 airborne alert missions had flown under a variety of code names. The missions were no secret. Power announced them publicly in January 1961 and pledged that some of SAC’s fleet would be airborne at all times. Hence bombers on airborne alert became a staple of deterrence at the peak of the Cold War. At times, 12 armed bombers were aloft at any given moment.

Crews flew 24-hour missions for Operation Chrome Dome. One aircraft commander by the name of Maj. Adelbert Gionet claimed he never flew without a toothbrush, mouthwash, surgical needle, catgut, and a flask of whisky. “If I ever rip any of me, I want to be able to put myself together,” he explained in a *Time* magazine interview.

Publicity for the Chrome Dome missions detailed how these B-52s carried nuclear weapons with all the codes and procedures for arming and releasing the bombs. They made quite an impression on Soviet Premier Nikita Khrushchev during the 1962 Cuban Missile Crisis when SAC surged as many as 75 airborne nuclear flights per day. “About 20 percent of all Strategic Air Command planes, carrying atomic and hydrogen bombs, were kept aloft around the clock,” Khrushchev later wrote with due respect.

Airborne nuclear alert also bolstered the nuclear strategy of the Kennedy Administration. McNamara declared that both the US and the Soviet Union should have “the capability of surviving a first strike and retaliating selectively.” This would provide a “more stable balance of terror,” added McNamara.

As to safety, the SAC publicity machine chose its words carefully. “At worst, only the TNT in an unarmed H-bomb explodes on impact,” recorded *Time* in 1961.

It wasn’t quite that simple, however.

A string of accidents with nuclear weapons had already occurred in the 1950s. In the records, anything involving a nuclear weapon shape or bomb body, armed or not, was deemed a nuclear accident.

The first recorded USAF nuclear weapon accident occurred in February 1950.



**SAC commander Gen. Thomas Power wears a hard hat for a visit to Vandenberg AFB, Calif. Chrome Dome was Power's brainchild.**

A B-36 flying a simulated combat mission from Alaska to Texas lost three engines and developed icing at 12,000 feet. The crew jettisoned its weapon over the Pacific complete with a bright flash, bang, and shock wave on impact near Vancouver, Canada. Fortunately, they were carrying a dummy capsule filled only with high explosives.

Crashes and emergencies on B-29s, B-36s, B-47s, and B-50s took place across the nation from New Mexico to Ohio to California. They happened for all the usual reasons: Airplanes skidded on wet runways, flew into mountains, dropped out of the sky on a clear day from 7,000 feet, and caught fire during takeoff. One accident involved a B-29 with a propeller malfunction at Fairfield-Suisun Air Force Base in California in August 1950. Explosions and fire claimed the lives of 19 crew, including Brig. Gen. Robert F. Travis, and rescue personnel. The base was later renamed for Travis.

The early accidents rarely posed major problems. The weapons of the day required mating a capsule of nuclear material with the bomb body itself. Airplanes often carried both weapon and capsule but rarely joined them together. Such was the case in a 1957 incident where a B-36 was ferrying weapons from Biggs AFB, Tex., to Kirtland AFB, N.M. On approach, the weapon dropped and fell through the closed bomb bay doors from

a height of 1,700 feet. The blast blew a crater 25 feet wide and 12 feet deep, but luck held.

Although the weapon and capsule were aboard, the capsule was not inserted due to safety concerns, a Pentagon report later noted.

Accidents happened outside the US, too. One of the most mysterious was the disappearance of a B-47 over the Mediterranean in March 1956. The bomber penetrated a cloud deck to hit a refueling point at 14,000 feet and was never seen again. No trace was ever found of the airplane or its crew. Two nuclear capsules vanished.

Although some airmen died, the Air Force made it through the first 10 incidents with no contamination from nuclear material. That changed in 1958.

Tensions with the Soviet Union after Sputnik increased the pace of operations. Bombers were busy adjusting their deterrence postures during a renewed Berlin crisis. Five accidents took place that year. The first incident at an overseas base was bad enough for SAC to tear out portions of an asphalt runway due to contamination.

Then in February, a B-47 jettisoned a nuclear weapon in Georgia's Wassaw Sound. Divers searched for two months but came up empty-handed. The weapon has never been found.

In March 1958, a B-47 crew accidentally released an unarmed bomb about six miles from Florence, S.C.

### **Early Accident**

Early in November 1958, a B-47 crashed on takeoff from Dyess AFB, Tex., leaving a crater 35 feet wide.

Less than three weeks later, on Nov. 26, a ground fire in a B-47 at Chennault Air Force Base in Louisiana consumed one more nuclear weapon. Contamination was limited to the immediate vicinity of the weapon residue within the aircraft wreckage, however.

These early incidents had their share of drama, but they would soon be upstaged by five memorable incidents with B-52s under the Chrome Dome missions.

Crash No. 1 took place within a week of Power's announcement of Operation Chrome Dome in January 1961. Struc-

tural failure of the right wing caused an aircraft to break up below 10,000 feet. One bomb parachuted safely to earth. The other shattered on impact, with one piece containing uranium falling into soggy farmland and disappearing. After weeks of digging, the Air Force gave up and paid for an easement on the land to block anyone else from excavating there.

The B-52's structure was beefed up following the incident.

Crash No. 2 happened in March 1961, caused by a string of errors beginning with a failure of cabin pressure. The B-52 descended to 10,000 feet, but suddenly the crew found they'd burned too much fuel to make it to their tanker, and had to bail out near Yuba City, Calif. Two nuclear weapons broke loose on impact. Neither exploded.

For the next three years, SAC maintained the Chrome Dome missions without incident. Then came the night when Maj. Thomas W. McCormick and his crew of four took off from Westover Air Force Base in Massachusetts on Jan. 13, 1964, for a night flight home to Turner AFB, Ga. Only McCormick and his co-pilot, Capt. Parker C. Peedin, would survive.

A winter blizzard roaring across the Appalachian Mountains hit the B-52D near Grantsville, Md., in wooded mountains dotted with farms. McCormick and Peedin got clearance to climb from 29,500 to 33,000 feet in search of smoother air. It was too late. The turbulence sheared off the tail and damaged the left horizontal stabilizer. The BUFF rolled on its back and McCormick ordered the crew to bail out. Four did, but the bombardier was unable to and died in the airplane. Two nuclear bombs "remained in the aircraft until it crashed and were relatively intact in the approximate center of the wreckage," noted the official Pentagon report.

The bombs and surviving crew were now stuck in remote mountains with at least 14 inches of fresh snow.

On the ground, McCormick holed up near a tree during the frigid, snowy night. Peedin landed in a tree some distance away from McCormick and was eventually found by the Civil Air Patrol. The gunner, Sgt. Mel Wooten, was injured in the ejection and died that night. Navigator Maj. Robert L. Payne was injured and attempted to walk to safety but perished when he slid into a partially frozen stream.

Volunteers, 500 soldiers from Fort Meade, Md., and marines from Quantico,



Va., converged on western Maryland to search for the wreckage and its payload. Eventually, a local quarry operator lifted out the weapons.

The next crash was the infamous incident at Palomares. By the time of the Palomares incident, Chrome Dome was scaled back to four airborne alert aircraft. Larger Minuteman arsenals and better early warning changed the surprise attack calculus. However, airborne alerts continued—as did the risks.

A final accident in January 1968 ended the Chrome Dome missions altogether. “A recovery team is searching for wreckage from an American Air Force B-52 bomber, armed with four hydrogen bombs, which crashed into the sea near the Arctic air base of Thule in Greenland,” reported the BBC.

That B-52 crew was Hobo 28. They’d taken off on Jan. 21, 1968, flying with an extra pilot aboard for a 24-hour airborne alert mission.

Thule was home to a special radar, key to the Ballistic Missile Early Warning System (BMEWS). The radar and its command and control link were also thought to be at the top of the Soviet Union’s target list if war started.

Hobo 28 was an experienced crew that made one small mistake: Extra seat cushions were brought aboard for the flight and placed too close to a heat source. Hours into the flight, something started to smoke. Soon the crew had expended all their onboard fire extinguishers. As the cabin filled with smoke, they bailed out over the ice.

Greenlander dogsled teams set out immediately to help search for the downed aircrew. Six out of seven crew

members survived after spending hours on the subzero ice. One crewman had been fatally injured on ejection.

Dogsled teams led survey work for the first several days until it was determined the sea ice was thick enough to support vehicles. The Thule crash—with bombs loose on Greenland territory—was a diplomatic nightmare. Greenland belonged to Denmark, and Denmark had a nuclear-free policy. A week after the crash, investigations determined that all four bombs had disintegrated into the ice.

### Conditions Perilous

Of course, that meant the nuclear material was dispersed, too. The B-52 and its four nuclear weapons dug a long, charred scar into the ice. The four bombs held more than 13 pounds of plutonium. About half spilled onto the blackened streak, which also had tritium contamination and perhaps half a pound of the plutonium lodged in the ice. The remainder saturated the wreckage itself.

A team of US and Danish officials concluded the radioactivity spread was “not a hazard to people or biological species.”

Still, the US agreed to remove all the radioactive ice. So began Crested Ice. It would ultimately involve 700 people from 70 different agencies.

Conditions were perilous. Temperatures averaged minus 25 degrees Fahrenheit and even slight winds plunged the wind chill to minus 50. The sun did

***A Chrome Dome KC-135 on the ramp at Moron AB, Spain. In 1966, a KC-135’s refueling boom hit the longeron of a nuke-carrying B-52, causing its wing to fall off—one of the most dangerous accidents to occur during Operation Chrome Dome.***

not rise over the crash area until February, but that caused its own problem: snow glare.

Four months after the crash, a total of 237,000 cubic feet of radioactive snow, ice, and water—not to mention the crash debris—had been loaded and moved to a storage site back in the United States. Cleanup work continued through the summer. The last of 600 containers of contaminated material departed on a US Navy ship on Sept. 13, 1968. Along the way, extensive ecological surveys probed the impact on the birds, mammals, and marine life in the area, fortunately finding no significant impact.

Operation Chrome Dome itself was long since over. It had ended almost eight months earlier, on Jan. 22, 1968—the morning after Hobo 28 went down.

“Great technological accomplishment imposes great responsibility,” wrote retired USAF Maj. Gen. Richard O. Hunziker, who’d been in charge of the crash scene at Thule.

Bombers remained a vital leg of the nuclear deterrence triad, but the days of airborne nuclear alert were over. From January 1968 on, bombers pulled alert on the ground. ■

*Rebecca Grant is president of IRIS Independent Research. She has written extensively on airpower and serves as director, Mitchell Institute, for AFA. Her most recent article for Air Force Magazine, “Crunch Time for the Industrial Base,” appeared in June.*