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## Broken Arrows: Nuclear Weapons Accidents

Since 1950, there have been 32 nuclear weapon accidents, known as "Broken Arrows." A Broken Arrow is defined as an unexpected event involving nuclear weapons that result in the accidental launching, firing, detonating, theft or loss of the weapon. To date, six nuclear weapons have been lost and never recovered.

### 1950s

Date: November 10, 1950

Location: Quebec, Canada

A B-50 jettisoned a Mark 4 bomb over the St. Lawrence River near Riviere-du-Loup, about 300 miles northeast of Montreal. The weapon's HE [high explosive] detonated on impact. Although lacking its essential plutonium core, the explosion did scatter nearly 100 pounds (45 kg) of uranium. The plane later landed safely at a U.S. Air Force base in Maine.

Date: March 10, 1956

Location: Exact Location Unknown

Carrying two nuclear capsules on a nonstop flight from MacDill Air Force Base near Tampa, Florida to an overseas base, a B-47 was reported missing. It failed to make contact with a tanker over the Mediterranean for a second refueling. No trace was ever found of the plane.

Date: July 27, 1956

Location: Great Britain

A B-47 bomber crashed into a nuclear weapons storage facility at the Lakenheath Air Base in Suffolk, England, during a training exercise. The nuclear weapons storage facility, known as an "igloo," contained three Mark 6 bombs. Preliminary exams by bomb disposal officers said it was a miracle that one Mark 6 with exposed detonators sheared didn't explode. The B-47's crew was killed.

Date: February 5, 1958

Location: Off Georgia, United States

In a simulated combat mission, a B-47 collided with an F-86 near Savannah, Georgia. After attempting to land at Hunter Air Force Base with the nuclear weapon onboard, the weapon was jettisoned over water. The plane later landed safely. A nuclear detonation was not possible since the nuclear capsule was not on board the aircraft. Subsequent searches failed to locate the weapon.

Date: February 28, 1958

Location: Great Britain

A B-47 based at the U.S. air base at Greenham Common, England, reportedly loaded with a nuclear weapon, caught fire and completely burned. In 1960, signs of high-level radioactive contamination were detected around the base by a group of scientists working at the Atomic Weapons Research Establishment (AWRE). The U.S. government has never confirmed whether the accident involved a nuclear warhead.

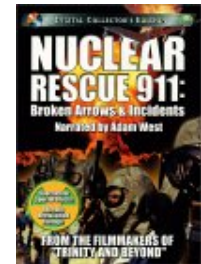
### 1960s

Date: January 24, 1961

Location: North Carolina, United States

While on airborne alert, a B-52 suffered structural failure of its right wing, resulting in the release of two nuclear weapons. One weapon landed safely with little damage. The second fell free and broke apart near the town of Goldsboro, North Carolina. Some of the uranium from

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that weapon could not be recovered. No radiological contamination was detectable in the area.

Date: July 4, 1961

Location: North Sea

A cooling system failed, contaminating crew members, missiles and some parts of a K-19 "Hotel"-class Soviet nuclear-powered ballistic missile submarine off Norway. One of the sub's two reactors soared to 800 degrees Celsius and threatened to melt down the reactor's fuel rods. Several fatalities were reported.

Date: December 5, 1965

Location: Pacific Ocean

An A-4E Skyhawk attack aircraft loaded with one B43 nuclear weapon rolled off the deck of the USS Ticonderoga. Pilot, plane and weapon were never found.

Date: Mid-1960s (Date undetermined)

Location: Kara Sea

Soviet nuclear-powered icebreaker Lenin was forced to dump its reactors in the Kara Sea. Some accounts said the Lenin experienced a reactor meltdown.

Date: January 17, 1966

Location: Palomares, Spain

A B-52 carrying four nuclear weapons collided with a KC-135 during refueling operations and crashed near Palomares, Spain. One weapon was safely recovered on the ground and another from the sea, after extensive search and recovery efforts. The other two weapons hit land, resulting in detonation of their high explosives and the subsequent release of radioactive materials. Over 1,400 tons of soil was sent to an approved storage site.

Date: April 11, 1968

Location: Pacific Ocean

A Soviet diesel-powered "Golf"-class ballistic missile submarine sank about 750 miles northwest of the island of Oahu, Hawaii. Reports say the submarine was carrying three nuclear-armed ballistic missiles, as well as several nuclear torpedoes. Part of the submarine was reportedly raised using the CIA's specially constructed "Glomar Explorer" deep-water salvage ship.

Date: November 1969

Location: White Sea

The U.S. nuclear-powered submarine Gato reportedly collided with a Soviet submarine on November 14 or 15, 1969, near the entrance of the White Sea.

## 1970s

Date: April 12, 1970

Location: Atlantic Ocean

A Soviet "November"-class nuclear-powered attack submarine experienced an apparent nuclear propulsion problem in the Atlantic Ocean about 300 miles northwest of Spain. Although an attempt to attach a tow line from a Soviet bloc merchant ship; the submarine apparently sank, killing 52.

Date: November 22, 1975

Location: Off Sicily, Italy

The aircraft carrier USS John F. Kennedy and the cruiser USS Belknap collided in rough seas at night during exercises. Although it was declared as "a possible nuclear weapons accident," no subsequent nuclear contamination was discovered during the fire and rescue operations.

## 1980s

Date: October 3, 1986

Location: Atlantic Ocean

A Soviet "Yankee I"-class nuclear-powered ballistic missile submarine suffered an explosion and fire in one of its missile tubes 480 miles east of Bermuda. The submarine sank while under tow on October 6 in 18,000 feet of water. Two nuclear reactors and approximately 34 nuclear weapons were on board.

Date: April 7, 1989

Location: Atlantic Ocean

About 300 miles north of the Norwegian coast, the Komsomolets, a Soviet nuclear-powered

attack submarine, caught fire and sank. The vessel's nuclear reactor, two nuclear-armed torpedoes, and 42 of the 69 crew members were lost.

Date: August 10, 1985

Location: Near Vladivostok, Russia

While at the Chazhma Bay repair facility, about 35 miles from Vladivostok, an "Echo"-class Soviet nuclear-powered submarine suffered a reactor explosion. The explosion released a cloud of radioactivity toward Vladivostok but did not reach the city. Ten officers were killed in the explosion.

## 1990s

Date: September 27, 1991

Location: White Sea

A missile launch malfunction occurred during a test launch on a "Typhoon"-class nuclear-powered ballistic missile submarine.

Date: March 20, 1993

Location: Barents Sea

The U.S. nuclear-powered submarine Grayling collided with a Russian Delta III nuclear-powered ballistic missile submarine. Both vessels reportedly suffered only minor damage.

Date: February 11, 1992

Location: Barents Sea

A collision between a CIS (Commonwealth of Independent States) "Sierra"-class nuclear-powered attack submarine with the U.S. nuclear-powered attack submarine Baton Rouge. Both vessels reportedly suffered only minor damage. There is a dispute over the location of the incident in or outside Russian territorial waters.

## 2000s

Date: August 12, 2000

Location: Barents Sea

The CIS (Commonwealth of Independent States) "Oscar II" class submarine, Kursk, sinks after a massive onboard explosion. Attempts to rescue the 118 men fail. It is thought that a torpedo failure caused the accident. Radiation levels are normal and the submarine had no nuclear weapons on board.

### Sources:

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This project is part of the National Science Digital Library and was funded by the Division of Undergraduate Education, National Science Foundation Grant 0434253