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## Briefing on: Selected Accidents Involving Nuclear Weapons 1950-1993

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The twenty-three accidents listed below involving U.S., Soviet, and Russian nuclear weapons or nuclear-armed ships and submarines are some of the more serious nuclear accidents to befall U.S. and Soviet nuclear forces.

As a result of accidents, some 51 nuclear warheads were lost into sea (44 Soviet and 7 U.S. However, at least one Soviet warhead was recovered). Also, seven nuclear reactors (5 Soviet and 2 U.S.) from three Soviet and two U.S. nuclear- powered submarines have been lost at sea due to accidents. Another 19 nuclear reactors from nuclear-powered vessels have been deliberately dumped at sea (18 Soviet and 1 U.S.).

The U.S. Navy is known to have experienced at least 380 nuclear weapons incidents, but the details are not known. It assumed that other countries with nuclear weapons have had similar nuclear weapons accidents or incidents, but official secrecy means that no information is available.

The nuclear nations' operational arsenals contain over 21,000 nuclear weapons. Their militaries still retain hundreds of nuclear-armed launchers and nuclear-capable military units. The threat of a serious nuclear weapons accident has not disappeared with the end of the Cold War. This is particularly the case where the arms race remains the most active: at sea where nuclear-armed and nuclear-powered ballistic missile submarines still go on regular patrols at levels that have not changed much if at all from the height of the Cold War.

If history is a guide, nuclear weapons safety probably has been a problem for the non-declared nuclear powers like India and Israel and for other countries that have had or do have incipient nuclear weapons programs. The experience of the U.S. and the Soviet Union suggests not only are nuclear arsenals extraordinarily expensive but they also come with serious safety, health, and environmental costs.

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1. 11 APRIL 1950: Shortly after departing Kirtland Air Force Base (AFB) in New Mexico, a U.S. B-29 bomber carrying a nuclear bomb crashed into a mountain. The bomb was destroyed but its nuclear capsule with the fissile materials, which was also on board the aircraft, had not been inserted for safety reasons.

2. 10 MARCH 1956: A U.S. Air Force B-47 bomber carrying two capsules of nuclear materials for nuclear bombs, en route from MacDill AFB, Florida, to Europe, failed to meet its aerial refueling plane over the Mediterranean Sea. An extensive search failed to locate any traces of the missing aircraft or crew.

3. 27 JULY 1956: During a routine deployment to England, a U.S. B-47 bomber skidded and slid off a runway at Lakenheath Royal Air Force (RAF) Base. The plane burst into flames and crashed into a nuclear bomb storage igloo in which there were three Mark 6 nuclear bombs. The bombs did not explode.

4. 18 AUGUST 1959: A helicopter engine exploded on board the U.S. aircraft carrier USS Wasp (CVS-18) which was operating 250 miles off Norfolk, Virginia. As fires raged, the ship's crew prepared to flood the nuclear weapons magazine, but after more than two hours the fires were brought under control.

5. 4 JUNE 1962: A nuclear test device atop a U.S. Thor rocket booster fell into the Pacific Ocean near Johnston Island after the rocket had to be destroyed. The test was part of the U.S.'s first high altitude atmospheric nuclear test attempt.

6. 20 JUNE 1962: A second attempt to detonate a nuclear device in the atmosphere failed when a Thor booster was destroyed over Johnston Island. The nuclear device fell into the Pacific Ocean.

7. 5 DECEMBER 1965: While the U.S. aircraft carrier USS Ticonderoga (CVA-14) steamed en route from bombing operations off Vietnam to the U.S. Navy base at Yokosuka, Japan, an A-4E attack jet loaded with a B-43 thermonuclear bomb rolled off the Number 2 elevator, and sank in 16,000 feet of water. The aircraft carrier was positioned about 70 miles from the Ryuku Islands and about 200 miles east of Okinawa. The bomb, aircraft and pilot were not recovered.

8. 17 JANUARY 1966: A collision occurred between a U.S. B-52 nuclear bomber and a KC-135 tanker aircraft while over the village of Palomares in southern Spain. The B-52 was on an airborne alert operation and carried four B-28 thermonuclear bombs. In the collision, the KC-135 exploded and caused the B-52 to break up, scattering wreckage over a 100 square mile area. One of the four nuclear bombs landed relatively intact, while the high explosives in two other bombs detonated upon impact with the ground scattering radioactive materials over the village and surrounding area. The fourth bomb fell into the sea and was recovered intact three months later after an extensive underwater search.

9. 21 JANUARY 1968: A U.S. B-52G nuclear bomber crashed on the ice seven miles west of

Thule Air Base in northern Greenland. The aircraft was on a airborne alert flight and carried four B-28 thermonuclear bombs. Upon impact with the ice the bomber exploded and all four nuclear bombs were destroyed, scattering radioactive materials over a large area.

10. 8-10 MARCH 1968: The K-219, a Soviet Golf II class (Project 629M) diesel-powered ballistic missile submarine armed with three nuclear SS-N-5 missiles, sank in the Pacific, about 750 miles northwest of the Island of Oahu, Hawaii. The submarine possibly also carried two nuclear torpedoes.

11. 27 MAY 1968: The U.S. nuclear-powered submarine USS Scorpion (SSN-589) sank about 400 miles southwest of the Azores, killing all 99 men on board. The submarine was powered by one nuclear reactor and carried two nuclear-armed ASTOR torpedoes.

12. 12 APRIL 1970: The K-8, a Soviet November class (Project 627A) nuclear-powered attack submarine, sank in the Atlantic Ocean 300 miles northwest of Spain. The submarine was powered by two nuclear reactors and carried two nuclear torpedoes.

13. 29 NOVEMBER 1970: A fire broke out in the stern of the U.S. Navy submarine tender USS Canopus (AS-34) while it was at the Holy Loch submarine base in Scotland. The tender carried several nuclear-armed missiles and two U.S. nuclear-powered ballistic missile submarines were moored alongside. It took four hours to bring the fire under control and three men were killed.

14. 22 NOVEMBER 1975: The U.S. aircraft carrier USS John F. Kennedy (CV-67) collided with the cruiser USS Belknap (CG-26) in rough seas at night during air exercises in the Mediterranean Sea off Sicily. The collision caused major fires and explosions, and the commander of Carrier Striking Force for the Sixth Fleet issued a 'Broken Arrow' message -- at top secret communication about a nuclear weapons accident - - warning of a 'high probability that nuclear weapons on the USS Belknap were involved in fire and explosions.' Eventually, the nuclear weapons barely escaped destruction as the fire was contained just feet from the forward weapons magazine.

15. 16 APRIL 1976: The cruiser USS Albany (CG-10) experienced a nuclear weapons incident -- known as a 'Dull Sword' -- when a TALOS anti-air missile's nuclear warhead was damaged.

16. 8 SEPTEMBER 1977: The K-171, a Soviet Delta I (Project 667B) nuclear-powered ballistic missile submarine, accidentally jettisoned a nuclear warhead near Kamchatka in the Pacific Ocean after a build-up of pressure in a missile launch tube. After a search, the warhead was recovered.

17. 18-19 SEPTEMBER 1980: A fire and explosion in a U.S. Titan II missile silo near Little Rock, Arkansas, blew off the silo door and catapulted the missile's 9 megaton yield warhead into the air. It landed over a 1,000 feet from the silo, but it was only slightly damaged.

18. 9 APRIL 1981: The U.S. nuclear-powered ballistic missile submarine USS George Washington (SSBN-598) collided with a Japanese freighter in the East China Sea. The freighter sank and the submarine suffered slight damage to its sail. The submarine probably carried a total of 160 nuclear warheads on its 16 Poseidon C3 missiles.

19. 21 MARCH 1984: The U.S. aircraft carrier USS Kitty Hawk (CV-63) collided with a Soviet nuclear-powered Victor class (Project 671) attack submarine in the Sea of Japan. At the time of the collision, the USS Kitty Hawk is estimated to have carried several dozen nuclear weapons, and the submarine probably carried two nuclear torpedoes.

20. 6 OCTOBER 1986: The K-219, a Soviet Yankee class (Project 667A) nuclear-powered ballistic missile submarine armed with 16 SS-N-6 missiles (two warheads each) and probably also two nuclear torpedoes, sank 600 miles northeast of Bermuda. It was powered by two nuclear reactors and 34 nuclear warheads were estimated to be on board.

21. 7 APRIL 1989: The K-278 Komsomolets, the Soviet Mike class (Project 685) nuclear-powered attack submarine, sank off northern Norway following on board fires and explosions. The submarine was powered by one nuclear reactor and carried two nuclear torpedoes.

22. 27 SEPTEMBER 1991: A missile misfired aboard a Soviet Typhoon class (Project 941) nuclear-powered ballistic missile submarine in the White Sea during a training exercise. Fortunately, the submarine was able to return to base, but the accident could have sunk the submarine, along with its two nuclear reactors and nuclear-armed missiles and torpedoes.

23. 20 MARCH 1993: A Russian Delta III class (Project 667BDR) nuclear-powered ballistic missile submarine is struck by the U.S. nuclear-powered attack submarine USS Grayling (SSN-646) while operating in the Barents Sea close to the Kola Peninsula. The submarine suffered slight damage and was able to return to base, but the collision could have sunk the Delta submarine including its 16 SS-N-18 nuclear armed missiles.