



Amchitka, Alaska, Site

FACT SHEET

This fact sheet provides information about the Amchitka, Alaska, Site. This site is managed by the U.S. Department of Energy Office of Legacy Management.

Site Description and History

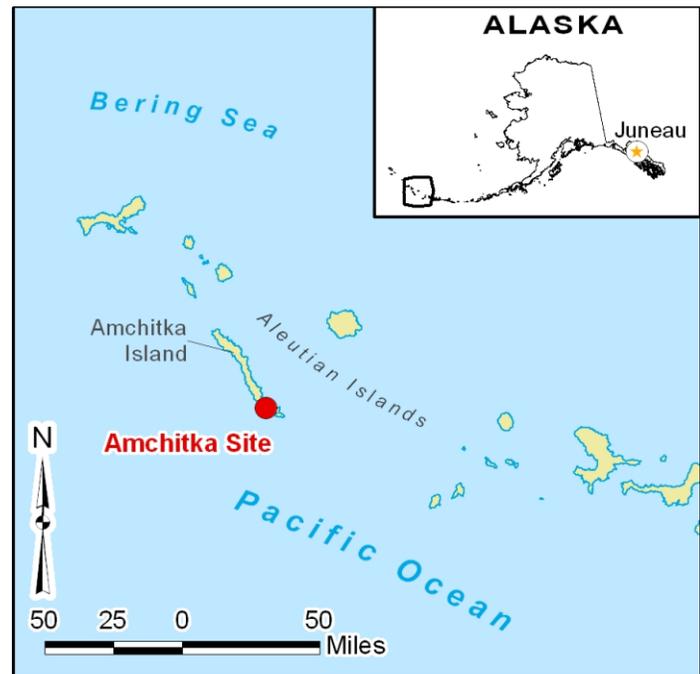
Amchitka Island is near the western end of the Aleutian Island chain and is the largest island in the Rat Island Group that is located about 1,340 miles west-southwest of Anchorage, Alaska, and 870 miles east of the Kamchatka Peninsula in eastern Russia. The island is 42 miles long and 1 to 4 miles wide, with an area of approximately 74,240 acres. Elevations range from sea level to more than 1,100 feet above sea level. The coastline is rugged; sea cliffs and grassy slopes surround nearly the entire island. Vegetation on the island is low-growing, meadow-like tundra grasses at lower elevations. No trees grow on Amchitka. The lowest elevations are on the eastern third of the island and are characterized by numerous shallow lakes and heavily vegetated drainages. The central portion of the island has higher elevations and fewer lakes. The westernmost 3 miles of the island contains a windswept rocky plateau with sparse vegetation.

The island is cool, windy, and generally cloudy or foggy. August is the warmest month, with an average temperature of 48°F. January is the coldest month, with an average temperature of 31°F. Wind speed averages 22 to 30 miles per hour year-round; the wind is calm less than 1 percent of the time. Low clouds cover the sky between 50 and 90 percent of the time. Low ceilings and fog are more frequent in the summer months and often persist for days at a time.

Amchitka formed about 50 million years ago from tectonic uplift and deposition of volcanic flow and marine sediments collectively known as the Amchitka Formation. Amchitka Island has no active volcanoes but is composed almost entirely of igneous rock from past volcanism. A thin, discontinuous veneer of soil overlies the volcanic bedrock.

Although the island is currently uninhabited, it is an ancestral home of the Aleuts, an indigenous people whose nearest community is Adak, on Adak Island about 170 miles east of Amchitka. The Aleuts occupied Amchitka intermittently from about 4,000 years ago until the late 1700s. At the beginning of World War II, Amchitka contained only an abandoned Russian fishing village.

President William Taft set aside the Aleutian Islands, including Amchitka, in 1913 as the Aleutian Island



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Location of Amchitka, Alaska, Site

Reservation. President Taft's Executive Order specified that designation of the island as a reservation should not interfere with certain other uses, such as for military purposes. In 1980, Amchitka was included in the Alaska Maritime National Wildlife Refuge as part of the Aleutian Islands Unit. Management of the island is under the jurisdiction of the U.S. Fish and Wildlife Service of the U.S. Department of the Interior.

The U.S. military began colonizing Amchitka in January 1943 to build an airbase to launch an assault on Japanese-held Kiska Island, about 60 miles west of Amchitka. The military constructed roads, numerous buildings, and three airstrips on the island.

Military occupancy reached its peak at 15,000 troops. World War II naval operations at the island ceased in 1945, and the Army abandoned its facilities in 1950. The Air Force operated a weather station on Amchitka in the early 1950s, a White Alice (White [for snow] **A**laska **I**ntegrated **C**ommunication and **E**lectronics) system from 1959 to 1961, and a temporary relay site in the 1960s and 1970s. The Navy established a radar station on the island in 1987. That facility was decommissioned in 1993.

The U.S. Government conducted three underground nuclear tests on Amchitka; the U.S. Department of Defense and the U.S. Atomic Energy Commission (AEC, a predecessor of the U.S. Department of Energy [DOE]) jointly conducted the first two, and AEC conducted the third. The first test, named Long Shot, was a nuclear detection research experiment detonated in October 1965 at a depth of 2,300 feet below ground surface, with a yield of about 80 kilotons (TNT equivalent). The second test, Milrow, was a high-yield (about 1,000 kilotons or 1 megaton) weapons calibration test detonated in October 1969 at a depth of 4,000 feet. The third detonation, known as Cannikin, was detonated in November 1971 at a depth of 5,875 feet below ground surface. The yield was listed as "less than 5 megatons." Cannikin remains the largest underground nuclear test in U.S. history.

DOE Responsibilities

Under the revisions to the Atomic Energy act of 1954 (as amended), DOE was assigned responsibility for certain AEC properties. In an April 2001 Letter of Agreement, DOE accepted responsibility for seven locales on Amchitka island: three drilling locations, three test locations, and the former asphalt plant near the north-south runway. DOE is responsible for only these locations, collectively referred to as the Amchitka site, not the entire island. All these locations are outside the designated wilderness area on the island and are not near potential Alaskan Native Tribal claims.

Contaminants Identified at the Amchitka Site

Anomalous concentrations of tritium (a radioactive isotope of hydrogen with a half-life of 12.3 years and also a "fingerprint" left by a nuclear detonation) were detected in surface water samples collected near the Long Shot test site. Tritium activity was monitored in samples of surface water and shallow groundwater from 1965 to 2001. The maximum detected concentration was about 16,000 picocuries per liter in 1966. The U.S. Environmental Protection Agency's drinking water standard for tritium is 20,000 picocuries per liter. Tritium concentrations in surface water and shallow groundwater samples around the Long Shot test site are decreasing faster than would be predicted from radioactive decay alone, indicating that dilution is also a factor.

In addition to the three underground test sites, six other sites were considered for possible nuclear testing. Large-diameter emplacement holes were drilled at two of the sites, and an exploratory hole was drilled at a third. These holes have been backfilled with native soils. The remaining sites were not drilled. A total of approximately 195 acres was disturbed by AEC activities.

Drilling at the three nuclear test sites and the three emplacement/exploratory locations used large quantities



*Amchitka Island; View From the East End Looking North
(U.S. Fish and Wildlife Service photo)*

of drilling mud, which consisted of water, diesel fuel, and other additives, including bentonite, chrome lignosulfonate, chrome lignite, cement, paper, and sodium bicarbonate. The drilling mud pits were left in place when AEC completed the tests and remained open until DOE began reclamation work in 2001. Chemical analysis of mud pit samples collected during a 1998 site investigation showed that the pits contained various organic compounds and chromium, but the only analytes with concentrations exceeding Alaska Department of Environmental Conservation cleanup standards were diesel-range organic compounds. Additional analyses indicated that, although drilling-related compounds were present in sediments of nearby surface water drainages, none of the compounds were detected in samples of shallow groundwater at the sites.

Two underground storage tanks adjacent to one of the runways were the location of a former mixing plant where asphalt-surfacing material was mixed during construction operations in World War II. The underground tanks contained about 12,000 gallons of a liquid tar-like substance.

Environmental Cleanup at the Amchitka Site

Because tritium concentrations are below drinking water standards, tritium was not considered a contaminant of concern in fresh water. In 2001, all shallow monitoring wells under DOE purview were plugged in agreement with Alaska Department of Environmental Conservation requirements. Groundwater monitoring was discontinued at the Amchitka site.

Drilling mud pits were stabilized by mixing the drilling mud with clean soil from a borrow area, homogenizing the mixture, and covering with a 30-mil (0.03 inch)-thick polyester geomembrane. The geomembrane was covered with 3 feet of soil and vegetated with a seed mixture.

