

Scientists warn of looming crisis at US Pacific nuclear dump

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29 March 2026

According to *Science Alert* on March 20, the Runit Dome nuclear waste dump on the Marshall Islands in the northwest Pacific is continuing to deteriorate with deepening cracks in the site's concrete capping and the casing vulnerable to rising seas due to global warming.

The 115-metre (377 feet)-wide dome was built between 1977 and 1980 as part of a supposed military cleanup. The 18-inch thick structure holds more than 3.1 million cubic feet of radioactive soil and debris, more than 120,000 tons of material contaminated by US nuclear waste including lethal quantities of plutonium. The dome was intended as a temporary fix and, to save money, the actual bomb crater on which it was constructed was never lined.

Accelerating climate change now threatens to turn the potential catastrophe into an irreversible regional disaster. Recent reports of new cracking, the daily in-and-out movement of radioactive groundwater driven by the tides, and rising seas around the structure show that it may have serious consequences for the wider Pacific and its impoverished populations.

Situated mid-way between Hawaii and Australia, the Marshall Islands has a population of 53,000 people. The island chain was occupied by Allied forces in 1944 and placed under US administration in 1947. It achieved nominal independence in 1986 under a neo-colonial Compact of Free Association (CoFA) which effectively still binds it to Washington.

Between 1946 and 1958, the US carried out 67 atmospheric and underwater nuclear explosions and a series of biological weapons tests in the islands. The largest, the Castle Bravo bomb detonated in March 1954, was 1,000 times more powerful than the atomic bombs dropped on Hiroshima and Nagasaki. The blast vaporised part of Runit Island and sent a mushroom cloud six kilometres into the sky. Irradiated soil from

the Enewetak and Bikini atolls, used as “ground zero” for the tests, was poured into a crater left from the detonations, mixed with concrete and covered with the shallow concrete dome.

Since the construction, groundwater has penetrated the crater, beneath which lies a bed of porous coral sediment. This is the main source of leaks, but experts are concerned that parts of the dome designed to sit above sea level will not stay above water much longer. US government data already shows sea level rise at Runit and project increases that will push waves higher over the dome, exacerbating cracking and infiltration.

With rising sea levels, the Marshall Islands is forecast to see many of its 29 atolls under water within 10 to 20 years. In 2019, the WSWs reported a *Los Angeles Times* investigation that showed climate change is breaking open the aging and weathered dome as it “bobs up and down with the tide,” threatening to spill nuclear waste into the ocean.

According to Marshall Islands President Hilda Heine, debris from the dome was in 2019 already seeping into the nearby lagoon, used by locals as a food source. Following a fruitless visit to the White House accompanied by the presidents of Palau and the Federated States of Micronesia, Heine told Reuters she “saved her breath” rather than in a futile attempt to persuade US President Trump, then in his first term in office, of their concerns about climate change.

Columbia University chemist Ivana Nikolic-Hughes, who has been involved in ongoing research into the contamination of the Marshall Islands, told the Australian Broadcasting Corporation (ABC) on March 15 that she saw the dome's cracks first-hand while taking soil samples on the island in 2018. Nikolic-Hughes has since found elevated radiation levels and significant quantities of radionuclides in soil from

outside the dome.

The presence of plutonium, which remains dangerous for more than 24,000 years, warrants “grave concerns,” she warned. Rising sea levels and intensifying storms meant “the integrity of the dome could be in jeopardy.” Nikolic-Hughes noted that Runit is just 20 miles from where people live “so the implications are potentially devastating.”

The ABC further reported that experts “worry the dome will not stand the test of time.” Arjun Makhijani, a nuclear engineer and president of the Institute for Energy and Environmental Research, said no concrete structure could endure even for a tiny fraction of the life span of plutonium. “There are already cracks in it in less than 50 years,” he said. Bikini Atoll, meanwhile, remains effectively uninhabitable due to radioactive contamination.

The personal consequences have been devastating. Former US Army truck driver Robert Celestial, involved in the 1970s “clean up,” told the ABC: “We were on a small island in the Pacific with 500 guys on it, and it was like Alcatraz. You couldn’t escape.” He has since suffered multiple health problems, including brittle bone, osteoporosis, arthritis as well as kidney and liver issues.

Of the 4,000 troops posted to Enewetak during the 1970s and 80s, only a few hundred are alive today, according to records from the National Association of Atomic Veterans. It was not until 2023 that the US government officially recognised the survivors as “atomic veterans” who could access disability claims. “We couldn’t go to the VA [Veterans Affairs] before that so a lot of guys couldn’t get treatment,” Celestial said.

He described the clean-up effort as careless. “We didn’t do a good job,” he said. “We didn’t know what the plan was so a lot of the equipment and hot stuff we just dumped into the lagoon.”

Hundreds of Marshall Islanders were exiled across the Pacific—impoverished, their homes devastated and health imperiled. An international tribunal concluded in 1988 the US should pay \$2.3 billion in claims, but Congress and US courts refused. Documents cited by the *LA Times* showed the US paid just \$4 million.

Washington has falsely asserted that locals now face little risk from radioactivity. At Bikini and Rongelap, residents initially returned to their islands after the US

told them it was safe. The resettlement was a disaster. Cancer cases, miscarriages and deformities multiplied. By 1967, 17 of the 19 children who were younger than 10 and on the island during the Bravo detonation had developed thyroid disorders and growths. One child died of leukaemia.

Under the Compact with Washington, in exchange for limited funding and continued US military access, “all claims, past, present and future” related to nuclear testing were declared resolved. US officials now exploit this arrangement to shield Washington from any responsibility, with the legal burden for any remediation of Runit Dome resting primarily with the impoverished Marshall Islands government.

The social crime committed by the US is emblematic of wider imperialist domination of the Pacific. Major powers occupied large tracts of the region and used it for nuclear testing after World War II. The United Kingdom exploded atomic and hydrogen bombs at Malden Island and Kiritimati (Christmas Island) in 1957-1958. A total of 193 tests were carried out by France on Fangataufa and Mururoa Atolls in French Polynesia from 1966-1996, including one thermonuclear device in 1968.

Today, the Marshall Islands are again assuming geo-strategic importance as part of Washington’s intensifying confrontation with Beijing. Once poisoned for nuclear weapons development, the tiny Pacific Island state is now, along with other parts of the Pacific, being secured and upgraded as a forward platform in the US-led drive to militarily encircle China.



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