

Under the dome: Fears Pacific nuclear 'coffin' is leaking

May 26 2019, by Giff Johnson



The huge dome built over top of a crater left by one of the nuclear nuclear tests over Runit Island in Enewetak in the Marshall Islands

As nuclear explosions go, the US "Cactus" bomb test in May 1958 was relatively small—but it has left a lasting legacy for the Marshall Islands

in a dome-shaped radioactive dump.

The [dome](#)—described by a UN chief Antonio Guterres as "a kind of coffin"—was built two decades after the blast in the Pacific ocean region.

The US military filled the bomb crater on Runit island with [radioactive waste](#), capped it with concrete, and told displaced residents of the Pacific's remote Enewetak atoll they could safely return home.

But Runit's 45-centimetre (18-inch) thick concrete dome has now developed cracks.

And because the 115-metre wide crater was never lined, there are fears radioactive contaminants are leaching through the island's porous coral rock into the ocean.

The concerns have intensified amid climate change. Rising seas, encroaching on the low-lying nation, are threatening to undermine the dome's structural integrity.

Jack Ading, who represents the area in the Marshalls' parliament, calls the dome a "monstrosity".

"It is stuffed with radioactive contaminants that include plutonium-239, one of the most toxic substances known to man," he told AFP.

"The coffin is leaking its poison into the surrounding environment. And to make matters even worse, we're told not to worry about this leakage because the radioactivity outside of the dome is at least as bad as the radioactivity inside of it."

Cold War-era nuclear dome in the Pacific

Fears of radioactive contamination at the site of the 1958 Cactus nuclear test on Runit Island

Cactus dome

Built in 1977 as a dumping ground for waste from US nuclear tests in the Pacific, covers over 100,000 m² of radioactive material

Top concerns:

- The bottom of the crater was never lined leading to fears the waste is leaching into the Pacific
- Cracks have developed in the concrete after decades of exposure
- It could break apart if hit by a tropical cyclone or inundated by rising sea levels

Dome structure

Concrete cap

45 cm thick

Doughnut hole

Holds contaminated debris

layer of cement

Oversize debris

Tremie

First layer under water level

Key wall

Designed to protect the containment structure

Crater from 1958 blast contains 10-15 metres of radioactive sediment

The US conducted 67 tests from 1946-58, at Eniwetok and Bikini atolls

MARSHALL ISLANDS

Eniwetok Atoll

Runit Island

Cactus crater

50 m

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Graphic showing the "Cactus dome" US nuclear waste dump in the Pacific.

'Staggering' challenges

The dome has become a symbol of the mess left by the US nuclear test

programme in the Marshall [islands](#) when 67 bombs were detonated between 1947-58 at Enewetak and Bikini atolls.

Numerous islanders were forcibly evacuated from ancestral lands and resettled, including Enewetak's residents. Thousands more islanders were exposed to [radioactive fallout](#) and suffered [health problems](#).

The people of Enewetak were allowed home in 1980, and about 800 islanders now live in the southern part of the atoll, 20 kilometres (12 miles) from Runit.

After the US military withdrew, the Marshall Islands government officially accepted a "full and final" settlement to cover the impact of the nuclear tests.

But there have long been complaints that the compensation paid by Washington was inadequate, and the United Nations has described "a legacy of distrust" towards the United States.

UN Secretary General Guterres raised the issue earlier this month after meeting Marshall Islands President Hilda Heine in Fiji, when they discussed the nuclear legacy and the prospect of radioactive leakage from Runit dome.



Thousands of Marshall Islanders, amid continued nuclear tests in the region the 1950s, fled or were forcibly evacuated

"The Pacific was victimised in the past as we all know... the consequences of these have been quite dramatic, in relation to health, in relation to the poisoning of waters in some areas," he said.

Marshalls Foreign Minister John Silk said he appreciated Guterres bringing the Runit dome to world attention with this comments.

"We are pleased that the Secretary General made these statements, since so often it seems that these ongoing legacy issues that continue to impact our people are forgotten by the international community," he said.

Uncertain future

Rhea Moss-Christian, who chairs the Marshall Islands National Nuclear Commission, said the country "needs the support of the international community to address the staggering health and environmental challenges across the Pacific."

The consequences of the dome failing are unclear.

A 2013 inspection commissioned by the US government suggested radioactive fallout in the Enewetak lagoon sediment was already so high a catastrophic failure would not necessarily result in locals receiving increased dosages of radiation.



Marshall Islands' President Hilda Heine has discussed the legacy left from the nuclear detonations, and the prospect of radioactive leakage

Silk, noting that the US government had committed to ongoing monitoring of the dome, said an independent assessment of the structure's status "would be helpful".

But Ading said the situation was "a constant source of anxiety for the people of Enewetak".

"We pray that the Runit dome does not eventually become our coffin," he said.

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