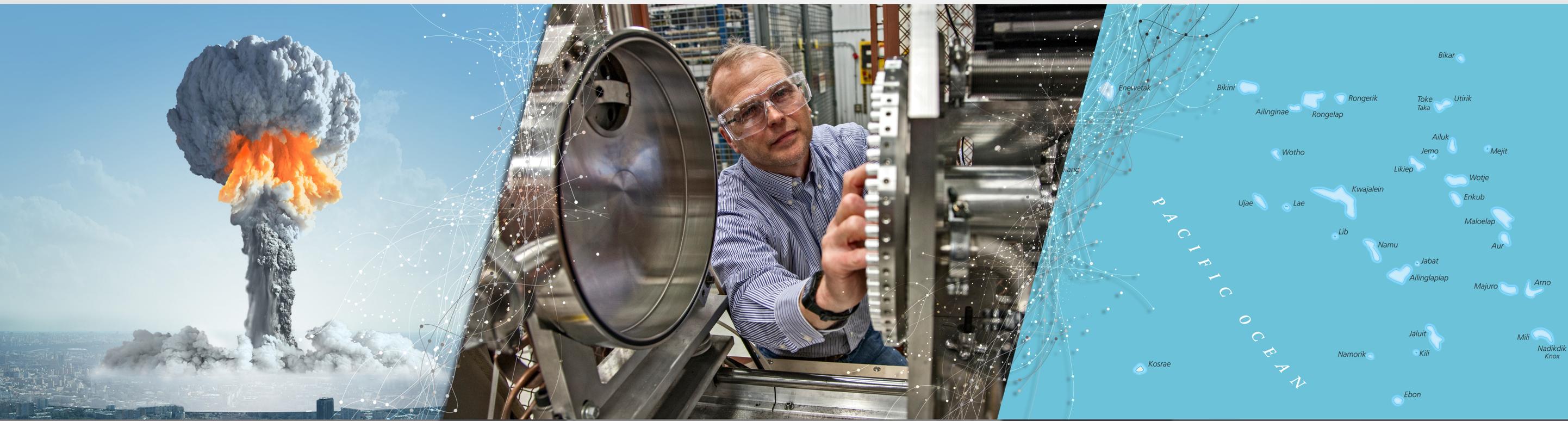


MARSHALL Islands

Evaluating nuclear exposure



During the Cold War, the U.S. conducted close to 200 atmospheric nuclear tests to evaluate blast effects and refine weapon design. Many of these tests took place in the Marshall Islands, a republic of 29 atolls and 5 islands in the Pacific Ocean near the equator. Bikini and Enewetak atolls, in particular, bore the brunt of 67 tests. In the decades since, environmental scientists have been working on characterization, surveillance, and remediation strategies for the lingering effects of fallout.

For more than 25 years, Livermore researchers have used accelerator mass spectrometry (AMS) to determine levels and distributions of fallout radionuclides in the marine and terrestrial environment of coral atolls with a view towards advising displaced human populations on future resettlement. AMS measurements also offer an accurate way to assess human exposure to plutonium. In this process, a urine bioassay sample is collected from an individual over a 24-hour period and turned into a powder that

scientists analyze at CAMS by counting the number of plutonium atoms in the sample.

Laboratory scientists continue to monitor for plutonium exposure in Marshall Islanders using AMS techniques, which are approximately 500 times more sensitive than monitoring techniques commonly employed in U.S. dosimetry monitoring programs. These activities help fulfill the Department of Energy's commitment to monitor resettlement workers and residents of nuclear-affected atolls and islands in the Marshall Islands.

