VANDENBERG AIR FORCE BASE, CALIF. — The U.S. military test-fired its second intercontinental ballistic missile (ICBM) in a week on Thursday night, seeking to demonstrate its nuclear arms capacity at a time of rising strategic tensions with Russia and North Korea.

The unarmed Minuteman III missile roared out of a silo at Vandenberg Air Force Base in California late at night, raced across the sky at speeds of up to 15,000 mph and landed a half hour later in a target area 4,200 miles away near Kwajalein Atoll in the Marshall Islands of the South Pacific.

Deputy Defense Secretary Robert Work, who witnessed the launch, said the U.S. tests, conducted at least 15 times since January 2011, send a message to strategic rivals like Russia, China and North Korea that Washington has an effective nuclear arsenal.

“That’s exactly why we do this,” Work told reporters before the launch. “We and the Russians and the Chinese routinely do test shots to prove that the operational missiles that we have are reliable. The test tonight is one of the ways in which we demonstrate that these missiles are safe and reliable and effective. And that is a signal … that we are prepared to use nuclear weapons in defense of our country if necessary.”

Demonstrating the reliability of the nuclear force has taken on additional importance recently because the U.S. arsenal is near the end of its useful life and a spate of scandals in the nuclear force two years ago raised readiness questions.

President Barack Obama’s final defense budget unveiled this month calls for a $1.8 billion hike in nuclear arms spending to overhaul the country’s aging nuclear bombers, missiles, submarines and other systems.

The nuclear spending boost is an ironic turn for a president who made reducing U.S. dependence on atomic weapons a centerpiece of his agenda during his first years in office.

Obama called for a world eventually free of nuclear arms in a speech in Prague and later reached a new strategic weapons treaty with Russia. He received the Nobel Peace Prize in part based on his stance on reducing atomic arms.