

Lockheed Martin Chosen To Design And Build Reentry Vehicle For Future Sentinel Nuclear Ballistic Missile

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Future LGM-35A Sentinel nuclear missile will replace the aging LGM-30G Minuteman III, and will have improved accuracy, security, and reliability.

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HILL AIR FORCE BASE, Utah – U.S. Air Force strategic weapons experts are moving forward with developing a next-generation U.S. nuclear intercontinental ballistic missile (ICBM) to replace the Minuteman III, and have chosen Lockheed Martin Corp. to develop the future ICBM's reentry vehicle.

Officials of the Air Force Nuclear Weapons Center, Hill Air Force Base, Utah, announced a \$996.2 million contract to the Lockheed Martin Space segment in King of Prussia, Pa., on 30 Oct. to design and build the MK21A Reentry Vehicle for the future LGM-35A Sentinel ICBM.

The Sentinel, formerly known as the Ground Based Strategic Deterrent, is being designed by Northrop Grumman Corp. in Roy, Utah. The Air Force wants the new missile to be operational by 2029.

Lockheed Martin Space will handle MK21A Reentry Vehicle engineering, manufacturing, and design to provide a low-technical-risk and affordable re-entry vehicle for Sentinel. The MK21A will be fitted with the future Sentinel's nuclear warhead.

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ICBM warheads typically use inertial and celestial guidance, which rely on precision gyros to measure movement, speed, and acceleration, as well as electro-optical sensors that determine the warhead's position relative to the stars.

The Northrop Grumman LGM-35A Sentinel team includes Aerojet Rocketdyne in El Segundo, Calif.; Bechtel Corp. in Reston, Va.; Clark Construction Group in Bethesda, Md.; the Collins Aerospace segment of Raytheon Technologies Corp. in Cedar Rapids, Iowa; General Dynamics Corp. in Reston, Va.; HDT Global Inc. in Solon, Ohio; Honeywell International Inc. in Charlotte, N.C.; Kratos Defense and Security Solutions Inc. in San Diego; L3Harris Technologies in Melbourne, Fla.; Lockheed Martin Corp. in Bethesda, Md.; and Textron Systems in Providence, R.I.

Also on the Northrop Grumman LGM-35A Sentinel team are hundreds of small- and medium-sized companies from across the defense, engineering, and construction industries, Northrop Grumman officials say.

The LGM-35A Sentinel ICBM is the follow-on to the aging LGM-30G Minuteman III ICBM, which first became operational in 1970. The LGM-35A Sentinel ICBM will have increased accuracy, enhanced security, and improved reliability.

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The LGM-35A Sentinel will have a 300-kiloton W87 Mod 0 thermonuclear warhead of unknown yield, capable of air- or ground-burst detonation. The silo-launched missile will have three-stage solid-fuel rocket propulsion with inertial and celestial guidance.

The LGM-35A Sentinel will replace the U.S. Minuteman III fleet, which constitutes one-third of the nation's nuclear weapons deterrent. Other U.S. nuclear warheads are on submarine-launched ballistic missiles and on manned jet bombers.

Each Minuteman III missile is 60 feet tall, 5.5 feet in diameter, and powered by three solid rocket motors that can launch the 80,000-pound missile to altitudes of 700 miles to deliver nuclear warheads as far away as 6,500 miles. Each missile contains as many as three independently targeted warheads in separate reentry vehicles.

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The U.S. maintains Minuteman III missiles at 450 missile sites in Colorado, Montana, Nebraska, North Dakota, and Wyoming. The missiles themselves are in underground silos and are ready for launch on very short notice.

The Minuteman III originally was equipped with a Rockwell Autonetics D37D flight computer, but as of 2008 had been upgraded as part of the Minuteman-III Guidance Replacement Program (GRP).

On the MK21A Reentry Vehicle contract, Lockheed Martin will do the work in King of Prussia, Pa., and other locations, and should be finished by October 2039. For more information contact Lockheed Martin Space online at www.lockheedmartin.com/en-us/capabilities/space.html, Northrop Grumman at www.northropgrumman.com/space/sentinel, or the Air Force Nuclear Weapons Center at www.afnwc.af.mil.

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