Sentinel Program Hits Key Milestone, Begins Groundwork At Former Montana Missile Sites

- Published April 15, 2026
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- 341st Missile Wing Public Affairs Office

MALMSTROM AIR FORCE BASE, Mont. --

The Department of the Air Force (DAF) is executing a critical new phase in the Sentinel Intercontinental Ballistic Missile (ICBM) modernization project as it conducts comprehensive ground studies at former Minuteman III sites to determine their suitability for reuse.

A geotechnical survey completed here in September is providing essential engineering data that will shape the future of the nation’s land-based nuclear deterrent.

This effort marked a tangible milestone for the program.

The study began on Aug. 12, 2025, near Conrad, Montana, when a mobile drilling rig bored into the earth for core samples at a former missile alert facility.

In alignment with the DAF’s efforts to modernize the land-based leg of the nation’s nuclear triad, Air Force Global Strike Command (AFGSC) activated Sentinel Site Activation Task Force (SATAF) detachments at each of the command’s three missile wings and a fourth at Vandenberg Space Force Base, California. The SATAF detachments are charged with being liaisons between mission partners to coordinate the retirement of the Minuteman III alongside Sentinel deployment.

"This first core sample represents more than just dirt; it marks the tangible start of a generational modernization effort,” said U.S. Air Force Col. James Rodriguez, Sentinel Launch Systems Program Manager. “Seeing this groundwork begin affirms that after years of planning, we are actively building the future of our nation's deterrent. It’s a significant moment for the Air Force and the entire Sentinel team.”

To gather the necessary data, engineers are using several advanced testing methods. The process includes drilling geotechnical borings to log soil and rock layers and collect

samples for laboratory analysis. In addition, teams are performing non-invasive seismic tests that send small vibrations through the ground to measure the strength and stiffness of subsurface layers. This comprehensive data is critical for designing safe and effective facilities.

“Malmstrom AFB and the city of Great Falls have been great hosts since the first Minuteman ICBM came on alert 62 years ago,” said U.S. Air Force Lt. Col. John Mayer, Malmstrom SATAF Det. 11 commander. “The next chapter is beginning though, and I am really proud to be a part of it. Detachment 11 is going to be working hard to ensure Sentinel is deployed effectively and efficiently, partnering with the community every step of the way, and the cooperation from local landowners has been outstanding. We’re excited to continue working with them collaboratively.”

Airmen from the 341st Missile Wing acted quickly to prepare the sites for the survey. They mowed grass to reduce fire risk from vehicles, replaced locks on gates, removed fence panels in some cases for better access, and numerous other steps to pave the way.

Meanwhile, a different survey was being performed at a former launch site approximately 20 miles to the east. This test, called a Multi-Channel Surface Wave Analysis (MSAW), uses seismic waves to probe for anomalies below the ground’s surface. MSAW is a way to test how strong or stiff the different layers of soil and are underground by sending vibrations through them instead of digging.

These tests stick a high-tech cone into the ground. As they push it down, the cone “feels” what the soil is made of, how much it pushes back and the water pressure in the dirt. It also sends out little vibrations to see how fast they travel, which tells them how strong the ground is and how it might act during an earthquake.

Northrup Grumman is the Air Force’s lead contractor for the Sentinel Project. They subcontracted this work to Water & Environmental Technologies, an engineering and environmental firm founded in 2000 with offices throughout Montana, such as Butte, Anaconda, Bozeman, Great Falls, and Kalispell.

The geotechnical investigation was led by Shane Smith, senior geotechnical engineer, Advanced Infrastructure Planning, Northrup Grumman; and Air Force veteran with a combined 20 years of service.

Smith said that all the testing and investigation methods utilized will be critical for the design and construction of new facilities to support the Sentinel modernization efforts.

“Geotechnical borings were conducted to log soil and rock lithology and collect soil samples,” Smith said. “These soil samples will be sent to a lab and tested for material properties. After completion of the geotechnical boring, the remaining hole was converted to a ground water monitoring well we’ll use to monitor ground water depths over time.”

The oversight and coordination of activities like these, involving government personnel, contractors, and private landowners are key examples of the critical role for the SATAF.

“The general feeling from the landowners was extremely positive,” Bergeron said. “They were welcoming, understanding of what we are doing, and why it is important.”

Strategic Context: Modernizing the Triad

The Sentinel ICBM will eventually replace the Minuteman III ICBMs currently in service, and on alert for more than 50 years, in Air Force Global Strike Command’s three missile fields at F.E. Warren AFB, Wyoming; Malmstrom AFB, and Minot AFB, North Dakota.

The sites tested near Conrad once belonged to the 564th Missile Squadron, a unit active at Malmstrom Air Force Base from 1965 to 2008 as one of the 341st Missile Wing’s four missile combat squadrons.

The squadron’s 50 launch facilities and five missile alert facilities were the Air Force’s most northwestern Minuteman III sites. The land has remained in Air Force caretaker status since 2014 after the launch facilities were later demolished to comply with the New Strategic Arms Reduction Treaty (START) signed with Russia in 2011, leaving the land in a caretaker status and available for this potential reuse.

This initial survey, which sampled 13 of the 55 former sites, is the first step in a data-gathering effort that will continue across the missile field for the next 18-24 months. Landowners can expect ongoing communication from the Air Force throughout the process.

The remaining 42 sites in the 564th Missile Squadron area will be surveyed through summer 2026 by the same contractor.

“It was great to see the collaboration with local expertise at the very beginning of this mammoth project,” said Mayer. “We’re excited to get started and be working with the landowners collaboratively.”

While the Sentinel will replace the Minuteman III ICBM, the Air Force is committed to ensuring the Minuteman remains a viable deterrent until Sentinel achieves full capability.

More information about the Sentinel Project can be found at https://www.afgsc.af.mil/Sentinel-GBSD/.

Questions about the Sentinel Project in Montana can be directed to the Sentinel Hotline at (406) 731-2427 or to afgsc.sentinel.hotline@us.af.mil.

https://www.malmstrom.af.mil/News/Article-Display/Article/4461198/sentinel-program-hits-key-milestone-begins-groundwork-at-former-montana-missile/