HOW IT WORKS

The biggest challenge for border security is detection. Whether people are stepping over a vehicle barrier or climbing over an 18-foot steel bollard wall, the Border Patrol agent needs to know about it. He/she needs detection and classification.

SEIDARM/SONIC BARRIER

Seismic technology provides significant advantages and/or enhancements in comparison to other mechanisms for security line protection, including fixed radar/optical towers, human sentries, or independently operating geophones (unattended ground sensors). For example, visual systems are often blocked by terrain and require human oversight for identification, while sentries are a costly use of human resources and highly susceptible to fatigue and related lack of vigilance.

Unattended ground sensors have been in use by the U.S. Border Patrol for many years, but have been plagued by many problems.

A report from the DHS Inspector General found only four percent of unattended ground sensor signals were caused by illegal border crossers. A Review of Remote Surveillance Technology Along U.S. Land Borders – DHS/OIG https://www.oig.dhs.gov/assets/Mgmt/OIG_06-15_Dec05.pdf

In searching for a “magic line” along the southern border, one DHS official said that 3 million sets of ground sensors would be needed to detect 50% of border crossers.


Wired Magazine reported that CBP’s plans to improve existing ground sensors by linking them by radio had been postponed by indefinitely owing to frequency management problems. https://www.wired.com/2013/02/border-sensors/

Seven years in development, a new Linear Ground Detection System – SEIDARM/SONIC BARRIER – Seismic Detection and Ranging Mechanism – solves these serious problems.
SEIDARM/SONIC BARRIER brings to DHS/CBP the ability to detect Items of Interest, including people, vehicles and low flying aircraft anywhere on an entire border with high reliability and confidence.

In use for decades, seismic oil exploration systems gather data for many miles of ground sensors simultaneously. SEIDARM/SONIC BARRIER is an adaptation of this technology to border security.

Instead of a single sensor broadcasting an alarm, the SEIDARM/SONIC BARRIER looks at up to five miles of sensors at one time.

Instead of radio, SEIDARM/SONIC BARRIER links powerful sensors to seismographs and then to a computer algorithm - by buried cable – sending alarms from one transmitter every five miles.

Instead of a sensor with a range of 40 feet, SEIDARM/SONIC BARRIER sensors have a human detection range in excess of 400 feet. Instead of a small circuit that must classify a signal in a few seconds, SEIDARM/SONIC BARRIER’s algorithm can study the data stream for as long as necessary to confidently classify a threat - greatly reducing the false alarm rate.

This combination of longer detection and improved location information allows tracking, and to determine whether an IoI (Item of Interest) is entering or exiting a protected area.

The system is buried and battery/solar powered. Cables can be encased in PVC pipe to protect against hazards such as varmints and vandalism.

Alarms are transmitted or each five-mile segment. Segments can be placed serially along a border to provide seamless coverage for any desired length.

Multiple targets can be tracked along the five-mile segment.

Seven years of R&D testing and demonstrations have proven that the SEIDARM/SONIC BARRIER Linear Ground Detection System can detect and identify all cross border intrusions as they are traversing the international border between the designated ports of entry.