

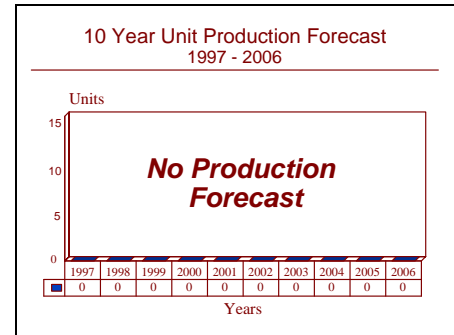
ARCHIVED REPORT

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BISS - Archived 7/98

Outlook

- Program terminated FY95
- Remaining projects transferred to Physical Security
- This report will be dropped next year



Orientation

Description. Base & Installation Security System (BISS); also known as PE#0603714F DoD Physical Security Equipment - Exterior.

Sponsor

US Air Force
Electronic Systems Center
Electronic Security and Communications
Systems Directorate
Hanscom AFB, Massachusetts (MA)
USA
(Program Manager)

Contractors

Armstrong Laboratory Inc
423 LaGrange Street
West Roxbury, Massachusetts (MA) 02132
USA
Tel: +1 617 323 7404
Fax: +1 617 323 6940
Directed Energy Division
Brooks AFB, Texas (TX)
USA
(Project 0005 Laboratory Support)

Arthur D. Little, Inc
25 Acorn Park
Cambridge, Massachusetts (MA) 02140
USA
Tel: +1 617 490 5000
Fax: +1 617 661 5830
(Project 0003 Engineering Support)

Phillips Laboratory
Kirtland AFB, New Mexico (NM)
USA
(Project 0005 Laboratory Support)

Status. Various elements in advanced development, engineering development or procurement. Program terminated at the beginning of FY95. Remaining projects transferred to PE#0603228D, Physical Security Equipment, sponsored by the US Department of Defense and the Defense Nuclear Agency.

Total Produced. Undetermined.

Application. Prevent intrusion onto or near military stations, bases and equipment through use of acoustics, electro-optics, seismic sensors, lasers, radars, and other detection devices, as well as using directed energy weapons to repel intruders.

Price Range. Undetermined.

Technical Data

Design Features. The BISS program has been developing a standardized set of components, interfaces, and methodology for the creation of exterior physical security systems in the areas of detection, command and control, and imaging. The DoD requires a family of standardized modular components that can be integrated into system configurations that provide a level of security consonant with the deployment mode, threat level, and sensitivity of the asset being protected. The resulting security equipment is aimed at increasing the capability of US security forces to detect and intercept terrorists, as well as permitting increased mobility of these forces for improved utilization of existing manpower.

BISS has been funded in both Advanced Development and Engineering Development budget categories. The

program, under direction of the USAF Electronic Systems Division (now the USAF Electronic Systems Center), has consisted of three functional areas: detection, command and control, and imaging. Each is supported by the development and procurement of various types of equipment. These include radars, acoustic devices, RF devices, IR, magnetic equipment, seismic sensors, entry control devices, pyroelectric vidicon imaging sensors, ported coaxial cable and fence sensors. Although initially the projects were under the guidance of the Air Force, they subsequently transitioned to Engineering and Manufacturing Development in PE#0603228D, DoD Physical Security Equipment.

Variants/Upgrades

A variety of efforts have been funded under the PE#0603714F - BISS umbrella, but the emphasis has shifted to funding only Air Force unique requirements, with the remaining USAF physical security require-

ments being funded under PE#0603228D, Physical Security Equipment. The complete series of efforts can be considered a continual upgrade, as the services continue to seek new ways to protect vital assets.

Program Review

Background. The requirement for the Base Security Program was established by a Secretary of Defense Memorandum signed in April 1972, which designated the Air Force as the lead service for development of exterior physical security systems for bases and installations. In November 1982 the Air Force awarded Computing Devices Co, Ottawa, Canada, a \$4.7 million contract for full-scale development of a buried cable security system for protection of military installations. The sensor was originally developed for the Canadian Correctional Services to detect escaping prisoners, but was adapted by the Air Force to detect intruders. The system has a two-mile-long pair of cables, buried a few inches underground, which detects disturbances, calculates where they occurred, and feeds the information to map displays in observation towers and control centers.

E-Systems was awarded a \$1.6 million contract in February 1983 to develop and supply 10 man-portable radar systems to protect parked aircraft and missile installations from intruders. Analytical Systems Engineering Corp was awarded a three-year, \$11.5 million contract in May 1983 to perform systems engineering

support and integration services for BISS. Also in FY84 full-scale development of a waterborne intrusion detection system (WIDS) and a transportable sensor/display system was begun. The waterborne system provides a capability to detect surface and underwater intrusion attempts at loading docks, Trident bases and other sensitive waterfront facilities. The transportable sensor/display system provides security for moveable weapon systems.

Procurement of systems which had completed full-scale development continued in FY85, as did engineering development of the waterborne and transportable systems. In FY85 the BISS program funded the initiation of a foliage penetration radar and a Radar Airborne Intrusion Detection System (RAIDS). Both transitioned to engineering development during the year. Full-scale development of the Mobile Individual Resource Protection Sensor, the Long Ported Coaxial Cable Sensor and the Magnetic Intrusion Line Sensor Signal Processor were all completed in FY85. The same year saw the performance of initial concept studies and component design and testing of a Technical On-Site Inspection (TOSI) system, a mostly classified

security system. Evaluation was also started on various commercially available entry control devices.

In FY87, major activity included continued development of a video storage system, continued development of the Foliage Penetration (FOLPEN) system and the initiation of the development of tactical sensors. TOSI demonstration model test and evaluation also began. By FY88 full-scale development of the RAIDS was initiated. The tactical sensor program was continued.

Full-scale development of RAIDS and the tactical sensors proceeded through FY89. In November 1989, Horizon Technology was awarded a \$17.7 million contract for systems engineering support work for BISS. For FY90 and FY91, the various program elements involved did not appear in the related budget documents. Only PE#0603714F reappeared in the FY92 R1 document, with funding requests cited for FY92 and FY93. The FY92 program conducted tests and a system integration and demonstration of MIDAS, which included the Video Imaging System for Detection, Tracking, and Assessment (VIDSTA). A field demonstration and validation of MIDAS and VIDSTA was scheduled for FY93.

FY93 funding documents deleted program activities detail by Fiscal Year. Project 0001 USAFE/SAC Physical Security Equipment - Exterior, was the sole project listed under PE#0603714F within the unclassified editions of the FY93 RDT&E documents. This project was tasked with advanced development of man-portable sensor devices that will detect intruders at a range of approximately 30 meters and report intrusion and status of alarms to either hand-held or fixed base monitors by radio transmission. Key system features include synthesized radio frequencies, multiple sensor codes, continuous communications link integrity monitoring, and operator commandable sensor status checking capability. The equipment emphasizes portability and minimum manpower requirements for airbase ground defense missions and for protecting both dispersed weapon system and fixed base resources. The "to complete" funds for this project accomplish advanced development work for the denial program. It integrates newly developed and existing nondevelopmental items (NDI) into a system capable of incrementally delaying the approach to, and ultimately denying an adversary access to, high value military resources. The system includes both passive and command activated barrier or weapon subsystems which will be fully integrated with existing and planned physical security systems. Denial systems were to be initially applied to weapon storage areas.

Project 0001 disappeared in FY94 and was replaced by two new efforts. Project 0003, Improved Miniature Detection Subsystem (IMIDS), provided for advanced development efforts for a sensor system that detected intruders in covert and relocatable environments while emphasizing mobility and minimum manpower requirements for protecting non-nuclear assets. The primary focus was on developing low-cost, expendable sensor systems with increased data communications capabilities that provided multiple verification of intrusions at non-nuclear weapons storage locations. Work under this project had already seen the investigation of options for increasing the operating frequencies of component sensors, adding a capability to save previous alarms in hand-held monitors, and increasing the quantity of sensors that can be monitored by the IMIDS. FY94 work included the completion of the investigation of low-cost sensors and demonstrations of several candidate systems, and the completion of development of selected improvements to IMIDS in preparation for transitioning to final design, prototyping, and testing of components. IMIDS was effectively completed at the end of FY94. From FY95 onward, no further funding was requested or granted. The IMIDS project was managed by the Electronic Security and Communications Systems Directorate, Electronic Systems Center, Hanscom Air Force Base, Massachusetts.

Project 0005 Active Denial. Project Active Denial was a FY94 new start intended to accelerate development efforts on complementary systems that provide an automated denial capability for security police forces. This project was concerned with the development of a system that automatically detected and denied intruder access to nuclear weapons in storage. It was to improve security of nuclear weapons while reducing cost reliance on manpower to deny access. Current techniques and equipment are manpower intensive and only provide security police forces a capability to detect an intruder, with limited options to deny access.

The new system was to automatically detect intruders and then deny access to nuclear weapons storage areas by applying incremental penalties (increasing in severity the closer the approach to the weapons storage area). The new system was expected to significantly reduce security police manpower requirements by integrating directed energy devices with complementary delay equipment (command and control, detection and surveillance subcomponents). It was thought that when fielded, the system would have minimized reliance on barriers, sensors, conventional firearms and personnel to repel intruders. It was reportedly the Air Force's highest-priority physical security project; however, beginning with FY95, the project was no longer listed

in the budget funding. The Air Force terminated this project because of nonrelated affordability concerns.

Funding

This program is no longer funded. Termination of program occurred in 1995.

Recent Contracts

No recent contracts have been identified for this program.

Timetable

	1972	SECDEF memorandum
	FY75	Initial funding
	FY78	Block 1 completed
	FY83	Block 2 completed
Oct	1985	FOLPEN Radar contract award
Aug	1986	TOSI component tests; go-ahead for demonstration model
Dec	1986	Complete TOSI demonstration model; final design of operational test facility
May	1988	Radar Airborne Intrusion Detection System (RAIDS) contract award
Oct	1989	FOLPEN development completed
	FY92	Initiated tests of MIDAS
	FY94	Initiated Active Denial program
	FY95	Program completed. Remaining projects terminated or transferred to other programs

Worldwide Distribution

US Department of Defense Physical Security programs, including BISS, are exclusive to US DoD facilities both in the continental United States and at all overseas installations.

Forecast Rationale

The Air Force normally receives RDT&E funds from OSD PE#0603228D, Physical Security Equipment, for these types of projects. However, these two projects were funded under PE#0603714F to satisfy Air Force unique requirements. The remaining Air Force physical security requirements will continue to be funded by PE#0603228D.

For all effective purposes, the BISS program development has been completed and the system is now installed and operational. Remaining security developments have been transferred to PE#0603228D, Physical Security Equipment.

Ten-Year Outlook

No forecast for BISS is being issued at this time. This report will be dropped next year.

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