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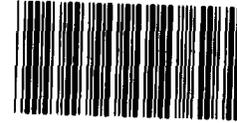
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PROCUREMENT AND SYSTEMS
ACQUISITION DIVISION

B-194888

JULY 2, 1980

The Honorable William Proxmire
United States Senate



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Dear Senator Proxmire:

Subject: [Performance of Wilshal Corporation's Sonar System for Detecting Waterborne Intruders Does Not Meet the Department of Defense's *DOD* Requirements] (PSAD-80-63)

This is in further response to your January 9, 1979, letter asking us to look into allegations made by Wayne Wilson, president of the Wilshal Corporation. According to Mr. Wilson, the Navy is wasting money to develop sensor systems for the Waterborne Intrusion Detection System (WIDS) which are currently available in the commercial market. We provided an interim response to you on May 22, 1979. Mr. Wilson wrote to you after first attempting unsuccessfully to interest the Department of Defense in the sonar system he had developed.

The WIDS program is part of the ongoing Air Force Base and Installation Security System program which is developing standardized exterior physical security equipment for protecting DOD military installations against the increasing terrorist threat. The program has been managed by the Air Force since July 1976.

WIDS is being designed to detect waterborne intruders and is composed of (1) two sonar sensors for detecting underwater targets and (2) a radar for detecting surface targets. The Air Force has assigned the Naval Coastal Systems Center in Panama City, Florida, to work on WIDS.

Before writing to you, Mr. Wilson had written to the Air Force Base and Installation Security System and WIDS program managers offering to sell to the Government improved bistatic sonars developed by Wilshal that purportedly meet the WIDS specifications. Following a preliminary test of Wilshal's sonar equipment in the Severn River north of Annapolis, Maryland, in May 1979, the Navy Coastal Systems Center

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purchased and tested it in St. Andrew Bay at the Naval Coastal Systems Center in Panama City, Florida.

The objectives of this test were to (1) determine the capabilities of Wilshal's equipment to detect waterborne intruders such as waders, swimmers, sneak craft, and swimmer delivery vehicles, (2) determine the false alarm rate and the nuisance alarm rate, and (3) assess the reliability and maintainability.

Test results showed that Wilshal's equipment does not meet WIDS' requirements. The probability of detecting the various targets was only 50 percent at less than 10 meters from the barrier line, whereas the requirement ranges from 90 percent to 99.9 percent depending upon the level of security needed. There were eight false alarms per hour, whereas the requirement is one per day with a 90-percent detection probability. Also, several reliability problems were encountered over the 2 months of testing, whereas the mean-time-between-failure requirement for permanently installed underwater sensors is 360 days.

The test report concluded that Wilshal's system may have application where a simple, commercially available, low-cost system for temporary deployment in quiet operational areas is needed. This would generally be in fresh water environments where biological life is small in size and number and for cases where surface chop is an absolute minimum.

According to the Navy, more than 30 different types of sonar equipments evaluated for use as swimmer intrusion detectors had performed well in a favorable environment. When these sonars were tested in unfavorable environments, such as rivers and bays having salt water incursion as well as additional noise sources, they exhibited lower probabilities of detection and higher false alarm rates.

We had Mr. Wilson review the Navy's test report. He said that the Center had conducted a reasonable and fair evaluation of his system and that its performance was unsatisfactory in the bay environment.

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of the report. At that time we will send copies to interested parties and make copies available to others upon request.

B-194888

If we can be of further assistance, please let us know.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "W. H. Sheley, Jr.", written in dark ink.

W. H. Sheley, Jr.
Acting Director