

**A**udit



**R**eport

GROUND BASED COMMON SENSOR SYSTEM FIELDING

Report No. 99-173

June 2, 1999

Office of the Inspector General  
Department of Defense

### **Additional Information and Copies**

To obtain additional copies of this audit report, contact the Secondary Reports Distribution Unit of the Audit Followup and Technical Support Directorate at (703) 604-8937 (DSN 664-8937) or fax (703) 604-8932 or visit the Inspector General, DoD Home Page at [www.dodig.osd.mil](http://www.dodig.osd.mil).

### **Suggestions for Future Audits**

To suggest ideas for or to request future audits, contact the Audit Followup and Technical Support Directorate at (703) 604-8940 (DSN 664-8940) or fax (703) 604-8932. Ideas and requests can also be mailed to:

OAIG-AUD (ATTN: AFTS Audit Suggestions)  
Inspector General, Department of Defense  
400 Army Navy Drive (Room 801)  
Arlington, VA 22202-2884

### **Defense Hotline**

To report fraud, waste, or abuse, contact the Defense Hotline by calling (800) 424-9098; by sending an electronic message to [Hotline@dodig.osd.mil](mailto:Hotline@dodig.osd.mil); or by writing to the Defense Hotline, The Pentagon, Washington, D.C. 20301-1900. The identity of each writer and caller is fully protected.

### **Acronyms**

GBCS  
IOT&E

Ground Based Common Sensor  
Initial Operational Test and Evaluation



INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202

June 2, 1999

MEMORANDUM FOR AUDITOR GENERAL, DEPARTMENT OF THE ARMY

SUBJECT: Audit Report on Ground Based Common Sensor System Fielding  
(Report No. 99-173)

We are providing this report for information and use. We conducted the audit in response to a congressional request. This report, which is the first of two reports on the Ground Based Common Sensor Program, addressed a pending Army contractual action. The second report will address the specifics of the congressional request. We considered management comments on a draft of this report when preparing the final report.

The comments conformed to the requirements of DoD Directive 7650.3; therefore, additional comments are not required.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. Robert K. West at (703) 604-8983 (DSN 664-8983) (rwest@dodig.osd.mil) or Ms. Eleanor A. Wills at (703) 602-1613 (DSN 332-1613) (ewills@dodig.osd.mil). See Appendix B for the report distribution. Audit team members are listed inside the back cover.

A handwritten signature in black ink that reads "Robert J. Lieberman".

Robert J. Lieberman  
Assistant Inspector General  
for Auditing



## Office of the Inspector General, DoD

Report No. 99-173  
(Project No. 8AD-5033)

June 2, 1999

### Ground Based Common Sensor System Fielding

#### Executive Summary

**Introduction.** This report, which is the first of two reports on the Ground Based Common Sensor Program, addressed a pending Army contractual action. The second report will address the congressional request to review the program management, costs, and technology approach for the Ground Based Common Sensor (GBCS) Program. This report discusses the Army's plan to field four GBCS Systems to the 82d Airborne Division.

The GBCS System was an Acquisition Category III program that was to provide division commanders with the capability to search, intercept, and listen to signals intelligence data, and to precisely locate the signal's point-of-origin for hard-kill or electronic attack. The GBCS System was to be fielded in three platform configurations, the GBCS-Light, the GBCS-Heavy, and the Advanced Quickfix.

**Objective.** The audit objective was to evaluate the economy and efficiency of fielding the GBCS-Light System to fulfill the 82d Airborne Division's 1988 Operational Needs Statement.

**Results.** The Army planned to field a system to the 82d Airborne Division that may not have satisfied their needs. The system may not have satisfied the users' needs because the 82d Airborne Division's 1988 Operational Needs Statement had not been updated to reflect the current threat, alternate solutions to the users' needs had not been fully assessed, and the system had a history of nonperformance. In addition, the user had not agreed to accept the system. In fielding this system, the Army may not have been addressing the users' needs to combat the current and future threat. Furthermore, the small number of systems the Army planned to field may have resulted in excessive logistics and training requirements. See Finding section for details.

**Summary of Recommendations.** We initially recommended that the Program Executive Officer, Intelligence Electronic Warfare and Sensors, assess alternatives to meet the current 82d Airborne Division's Operational Needs Statement and, if it is determined that the GBCS-Light Systems are the best solution, obtain a signed memorandum of agreement from the 82d Airborne Division agreeing to accept the four GBCS-Light Systems. We recommended that the Commander, 82d Airborne Division, update the 1988 Operational Needs Statement using the Defense Intelligence Agency's validated threat data. In addition, we recommended that the Deputy Comptroller (Program and Budget) withhold funding for modifying the GBCS-Light Systems for fielding to the 82d Airborne Division until the Army has resolved the above issues.

**Management Comments.** The Program Executive Office, Under Secretary of Defense for Acquisition and Technology, Assistant Secretary of the Army (Acquisition, Logistics, and Technology), and 82d Airborne Division all commented on the draft report. The Program Executive Office concurred with the recommendation relating to assessing

alternatives, stating that they have already evaluated alternatives to meet the Operational Needs Statement, that a memorandum of agreement should be executed with the 82d Airborne Division, and that the 1999 Research, Development, Test, and Evaluation funding is earmarked for the Prophet Program and should not be withheld as a result of this audit report. The 82d Airborne Division nonconcurred with the recommendation on updating the Operational Needs Statement, stating that the 1988 Operational Needs Statement and the ground component of the Prophet Operational Requirements Document are similar and that the 82d Airborne Division has decided to end participation in the GBCS-Light System. The Deputy Comptroller did not comment on the recommendation relating to withholding funding. See the Finding section of the report for a complete discussion of management comments and the Management Comments section for the complete text of the comments.

**Audit Response.** All three recommendations have been overcome by events because the 82d Airborne Division has decided not to accept the modified GBCS-Light System and the Army has no intention of procuring systems at this time. The second report on the GBCS Program will address the need for a mission needs statement and an analysis of alternatives for the Prophet System, which is to replace the GBCS Program. No additional comments are required at this time.

# **Table of Contents**

---

<b>Executive Summary</b>	i
<b>Introduction</b>	
Background	1
Objectives	2
<b>Finding</b>	
Fielding the Ground Based Common Sensor-Light System	3
<b>Appendixes</b>	
A. Audit Process	
Scope	10
Methodology	11
B. Report Distribution	12
<b>Management Comments</b>	
Under Secretary of Defense for Acquisition and Technology Comments	15
Assistant Secretary of the Army (Acquisition, Logistics, and Technology) Comments	16
Program Executive Office Comments	19
82d Airborne Division Comments	23



---

## Background

**Program History.** In July 1988, the Commander, 82d Airborne Division, Department of the Army, signed the operational needs statement for a Highly Mobile Radio Receiving System to replace the Teammate System. In November 1988, the Army held an in-process-review to consider the deficiencies of fielded Signals Intelligence and Electronic Warfare systems. The six systems were Acquisition Category III systems fielded in the 1970s and 1980s. None of the six systems ever fully met their operational requirements, yet the Army approved each for fielding at their respective Milestone III Decisions. The Army decided on a new approach in order to meet the operational requirements for these systems. The new approach would consolidate the systems' mission requirements through an upgrade program that would produce common sensor systems for both heavy and light divisions. The new upgrade program was the Ground Based Common Sensor (GBCS) System (also known as the Intelligence Electronic Warfare Common Sensor Program). The 1993 Milestone IV documentation for the six systems states that presentations, discussions, and decisions comprising a de facto Milestone IV decision took place from October 1988 through December 1991 and resulted in the GBCS System Program.

**The GBCS System Description.** The GBCS System was an Acquisition Category III program that was to provide division commanders with the capability to search, intercept, and listen to signals intelligence data, and to precisely locate the signal's point-of-origin for hard-kill or electronic attack. The GBCS System is comprised of three major subsystems, the Tactical Communications Jammer-A, the Communication High Accuracy Location System Exploitable, and the Common Modules Electronic Intelligence System. The Tactical Communications Jammer-A intercepts and locates conventional data, digital data, burst and low-probability-of-intercept communications; the Communication High Accuracy Location System Exploitable precision locates communication emitters for targeting; and the Common Modules Electronic Intelligence System identifies and locates radar threats.

The Army planned to field the GBCS System in three platform configurations: the GBCS-Light deployed on high-mobility multipurpose wheeled vehicles to support Light Divisions, the GBCS-Heavy deployed on tracked vehicles to support Armored and Mechanized Infantry Divisions, and the Advanced Quickfix deployed on the Blackhawk Helicopter to Army Divisions and Armored Cavalry Regiments. However, because the production cost per unit was too high, the GBCS-Heavy System was canceled in the third quarter of 1998. The U. S. Marine Corps was using the same subsystems as the Army's GBCS System for their Mobile Electronic Warfare Support System product improvement program. The Mobile Electronic Warfare Support System was configured on a Light Armored Vehicle platform. The scope of the audit did not include a review of the Marine Corps' Mobile Electronic Warfare Support System Program.

---

## **Objective**

The audit objective was to evaluate the economy and efficiency of fielding the GBCS-Light System to fulfill the 82d Airborne Division 1988 Operational Needs Statement. Details of the audit scope and methodology are in Appendix A.

---

## **Fielding the Ground Based Common Sensor-Light System**

The Army planned to field a system that may not have satisfied the users' needs. The system may not have satisfied the users' needs because the 82d Airborne Division's 1988 Operational Needs Statement had not been updated to reflect the current threat, alternate solutions to the users' needs had not been fully assessed, and the system had a history of nonperformance. In addition, the user had not agreed to accept the system. In fielding this system, the Army may not have been addressing the users' needs to combat the current and future threat. Furthermore, the small number of systems the Army planned to field might have resulted in excessive logistics and training requirements. These issues are now moot because the program has been cancelled.

### **The 82d Airborne Division's Operational Needs Statement**

On July 8, 1988, the Commanding General, 82d Airborne Division, signed an operational needs statement for a highly mobile radio receiving system. The Deputy Chief of Staff, Operations and Plans, validated the operational needs statement in February 1989, and requested the Program Executive Officer, Intelligence Electronic Warfare and Sensors, to provide a recommended hardware solution while planning for long-term logistics requirements.

The operational needs statement stated that the existing Teammate System, a frequency signal collection and direction finding system, could not be transported by C-130 aircraft without being dismantled; could not keep pace with the high-mobility multipurpose wheeled vehicle; and could not operate during or immediately after a move. The 82d Airborne Division needed a rapidly deployable, highly mobile, radio receiving system that could receive, record, and determine the direction of transmitted signals while moving with the supported force. Specifically, the operational needs statement requirements were that the system must be:

- ground based with a quick erect antenna,
- able to fit on a C-130 aircraft,
- vehicle or battery powered,
- modular with a built-in-test to isolate faults to the module,
- adaptable to mounting on a high-mobility multipurpose wheeled vehicle,
- nettable with direction-finding subsystems and external communications and computers, and
- set up and torn down by two men.

In addition, the operational needs statement stated that the system should:

- be air-dropable,
- have operating characteristics and specifications of no less than the Teammate System,

- 
- include direction-finding capabilities for high frequencies, very high frequencies, and Morse code, and
  - set up within 8 minutes and torn down within 3 minutes.

In 1993, the Army added the requirement for increased operational capabilities to counter the use of modern modulation emitters (low-probability-of-intercept). In October 1998, the Deputy Chief of Staff, Forces Command Intelligence, stated that the 82d Airborne Division's Operational Needs Statement requirement remains valid. This statement was made because the original operational needs statement was never fulfilled. The 82d Airborne Division did not evaluate their operational requirements against the current and projected threat, nor had the Army considered whether there were possible alternatives available to satisfy the 82d Airborne Division's operational needs.

## **GBCS System Development**

On September 25, 1991, the GBCS System Program Office awarded a full-scale, engineering-development, cost-plus-award fee contract to Electrospace Systems, Incorporated (now Raytheon Systems Company). The contract was to produce three engineering, manufacturing, and development systems for each platform configuration: three GBCS-Heavy Systems, three GBCS-Light Systems, and three AQF Systems. The GBCS Program Office purchased the Tactical Communications Jammer-A, the Communication High Accuracy Location System Exploitable, and the Common Modules Electronic Intelligence System subsystems from their respective program offices and provided them as Government-furnished equipment to Raytheon Systems Company. The Tactical Communications Jammer-A and the Communication High Accuracy Location System Exploitable were centrally developed by Project Manager Signals Warfare and provided to the GBCS Product Office as Government-furnished equipment. The Common Modules Electronic Intelligence System was purchased as a nondevelopmental item and provided to the integration contractor as Government-furnished equipment.

In 1994, the Program Executive Officer, Intelligence Electronic Warfare and Sensors, approved and signed the limited procurement-urgent decision for 12 GBCS-Light Systems. The Army was to place four GBCS-Light Systems in each of the three light divisions of the XVIII Airborne Corps. The GBCS System Program Office modified the Raytheon Systems Company contract for the production of 6 of the 12 GBCS-Light Systems.

In November 1995, the Army awarded a build-to-model, indefinite delivery and indefinite quantity, firm fixed-price, production contract for six GBCS-Light Systems and three Advanced Quickfix Systems to Loral (now Lockheed Martin Federal Systems). The GBCS System Program Office modified the build-to-model contract in 1996, to include a cost-plus and a time-and-material effort to find and fix deficiencies and prepare the system for the initial operational test and evaluation (IOT&E) scheduled in 1997. The GBCS Program Office modified the contract again in 1997, for the IOT&E scheduled in 1998. From 1991, through January 1999, the Army had spent about \$902 million on the GBCS System and

---

none of the three configurations including the GBCS-Light had met operational requirements. The figure \$902 million includes the development costs of both the Tactical Communications Jammer-A (intercept and direction finding system) and the Communication High Accuracy Location System Exploitable (precision location), which the technology was successfully integrated into other Army programs; such as the Guardrail Common Sensor and the Air Reconnaissance Low.

## The GBCS System Testing

The GBCS System test results showed a history of poor performance. The GBCS System was not able to reliably receive, record, or determine the direction of conventional or low-probability-of-intercept signals. Test results, also, indicated that the GBCS System was not rapidly deployable or highly mobile.

**Customer Testing.** The GBCS System was scheduled for IOT&E in 1994, 1995, 1996, and 1998; however, each time the system did not meet the entrance criteria and the IOT&E was cancelled. In 1994 and 1995, the GBCS System Program Office held customer tests instead of the IOT&E. These customer tests did not accurately reflect the performance of the GBCS System because nonquantitative test criteria were used. As a result, the GBCS System met the criteria even though the system did not perform well.

**Testing Oversight.** In July 1997, the Director, Operational Test and Evaluation, Office the Secretary of Defense, informed the Deputy Under Secretary of the Army (Operations Research) that the Intelligence Electronic Warfare Common Sensor (the GBCS System) and its subsystems were placed on the Office of the Secretary of Defense's Test and Evaluation oversight list. Finally, when the GBCS System did not enter IOT&E in 1998, the Program Office decided to have a developmental test and operational test (combined test). The combined test was performed to baseline the GBCS System, to provide information for a fielding decision of GBCS-Light Systems to the 82d Airborne, and to provide support for the Mobile Electronic Warfare Support System's Milestone III decision.

**Developmental and Operational Testing.** The GBCS System combined test was conducted at Fort Huachuca, Arizona, from June through August 1998. Four GBCS-Light Systems were tested. The GBCS-Light Systems did not meet 7 of the 11 critical operational issues and criteria. The Operational Test and Evaluation Command concluded that the GBCS-Light System was not effective or suitable for fielding. In addition, the test results showed that the GBCS-Light System did not meet the requirements identified in the 82d Airborne Division's Operational Needs Statement. The combined test identified problems with antenna assembly and erection; isolating subsystem failures; meeting the required setup time; detecting, identifying, and locating signals; and deployability.

Test results showed a history of low intercept and location percentages for the GBCS-Light System and that the system could not reliably detect low-probability-of-intercept signals. Also, maintaining the four GBCS-Light Systems during the combined test required a large quantity of spare parts. Based

---

on the 1998 combined test, it would have cost the 82d Airborne Division approximately \$1.6 million per year in spare parts alone to operate the GBCS-Light Systems. Additionally, mobility of the GBCS-Light System would have been limited by the large quantity of spares needed to sustain continuous operations over an extended period of time.

## **The GBCS-Light System Fielding Plan**

The Army planned to field the GBCS-Light Systems to the 82d Airborne Division in the fourth quarter of FY 2000. The GBCS System Program Office planned to modify the Lockheed Martin Federal System's production contract on April 1, 1999, for a \$26 million firm-fixed-priced effort to design, fabricate, and integrate five GBCS-Light Systems. Four systems were to be fielded to the 82d Airborne Division in response to the 1988 Operational Needs Statement and one system was to be used for testing. About \$18 million of the \$26 million was for common fixes that would have benefited both the GBCS-Light Systems and the Marine Corps' Mobile Electronic Warfare Support System.

The GBCS System Program Office modified the Lockheed Martin Federal System's contract on February 26, 1999, to fund the preparation of the operational needs statement contract proposal and statement of work and for the procurement of long-lead items. The price of the firm-fixed-price modification was \$910,000, which was included in the \$26 million overall effort.

The GBCS Program Office drafted a memorandum of agreement between itself and the 82d Airborne Division in March 1999, which details the level of performance and the test methodology required of the contractor. The 82d Airborne Division did not sign the memorandum of agreement that would commit it to accept the four GBCS-Light Systems after contract completion.

## **82d Acceptance of GBCS-Light Systems**

The 82d Airborne Division required a tactical communications system with rapid deployment capabilities. The 82d Airborne Division was still using the Teammate System. The Teammate System does not include the capability to detect or locate low-probability-of-intercept threat emitters.

The 82d Airborne Division was concerned about the risks associated with accepting the four GBCS-Light Systems because they would have been the only unit within the XVIII Airborne Corps with the GBCS-Light Systems and, therefore, the 82d Airborne Division's collection systems would have been incompatible with other units' collection systems. The GBCS-Light Systems would have created connectivity and interoperability problems for the 82d Airborne Division. Also, the 82d Airborne Division was concerned that the four systems required heavy logistics support during the combined test.

Having unique systems would have caused personnel and training risks. The turnover rate may have taken the experienced operators away from the unit causing

---

training gaps. Newly assigned soldiers would have had to rely on on-the-job training because the Training and Doctrine Command would have most likely not had formalized training for new soldiers for only four systems. Subsequently new soldiers would have had to receive training at the unit.

The 82d Airborne Division would have accepted the four GBCS-Light Systems on the following conditions:

- the GBCS Program Office had to develop a Life-Cycle Sustainment Program,
- the GBCS-Light System had to be compatible with the XVIII Airborne Corps and Joint missions, and
- the GBCS Program Office had to identify and fix the deficiencies and demonstrate that the fixes work.

## **Conclusion**

The 82d Airborne Division's operational needs statement was developed in 1988 and had not been updated to reflect the current and projected threat. The Army had not considered other alternatives as possible solutions to the 82d Airborne Division's operational needs.

The GBCS System was in development for nine years at a cost of \$902 million and was unable to meet its operational requirements. Spending additional money to field four unique systems that are not compatible or interoperable with other signal collection assets and were predicted to be very expensive to maintain, to fulfill an 11 year-old operation needs statement, did not appear to be a good business decision, especially when there was no guarantee that the 82d Airborne Division would have accepted the systems after the fixes were completed.

In considering all of the above concerns, the Deputy Comptroller (Program and Budget) should not release funds to the GBCS Program Office to modify the GBCS-Light System for fielding to the 82d Airborne Division.

## **Subsequent Actions**

Subsequent to the issuance of our draft report, the Commanding General, 82d Airborne Division, decided not to accept the GBCS-Light Systems and the Army has no intention of procuring systems at this time. The GBCS Program is currently being restructured and will be called the Prophet Program.

---

## Recommendations, Management Comments, and Audit Response

- 1. We recommend that the Program Executive Officer, Intelligence Electronic Warfare and Sensors:**
  - a. Assess alternatives to meet the current 82d Airborne Division's Operational Needs Statement.**
  - b. If it is determined that the Ground Based Common Sensor-Light Systems are the best solution, obtain a signed memorandum of agreement with the user before spending additional funds.**
- 2. We recommend that the Commander, 82d Airborne Division, update the 1988 Operational Needs Statement using the Defense Intelligence Agency's validated threat data.**
- 3. We recommend that the Deputy Comptroller (Program and Budget) withhold funds for the proposed Ground Based Common Sensor-Light fixes for fielding to the 82d Airborne Division.**

**Management Comments.** The Program Executive Officer; Director, Strategic and Tactical Systems, Under Secretary of Defense for Acquisition and Technology; Deputy for Systems Management and Horizontal Technology Integration, Assistant Secretary of the Army (Acquisition, Logistics, and Technology); and Commanding General, 82d Airborne Division all commented on the draft report. The Program Executive Officer concurred with Recommendation 1 and stated that they have already evaluated alternatives to meet the Operational Needs Statement and that a memorandum of agreement should be executed with the 82d Airborne Division. The Program Executive Office concluded that the best approach to satisfy the 82d Airborne Division's Operational Needs Statement was the modified GBCS-Light, commonly called the GBCS-ONS System. Although not required to comment on Recommendation 3, the Program Executive Officer stated that only the 1999 Other Procurement Army funding was going to be used to modify the GBCS-Light Systems for fielding to the 82d Airborne Division and that the 1999 Research, Development, Test, and Evaluation funding is earmarked for the Prophet Program and should not be withheld as a result of this audit report. The Commanding General, 82d Airborne Division nonconcurred with Recommendation 2, stating that the 1988 Operational Needs Statement and the ground component of the Prophet Operational Requirements Document are similar and that the 82d Airborne Division has decided to end participation in the GBCS-Light System. The Deputy Comptroller did not comment on Recommendation 3. See Management Comments for the complete text of comments.

**Audit Response.** All three recommendations have been overcome by events because the 82d Airborne Division has decided not to accept the modified GBCS-Light System and the Army has no intention of procuring systems at this time. Our second audit report on the GBCS Program will address the need for a mission needs statement and an analysis of alternatives for the Prophet System, which is to replace the GBCS Program. We revised Recommendation 3 to specify that only

---

funding that was going to be used to modify the GBCS-Light Systems for fielding to the 82d Airborne Division should be withheld. No additional comments are required at this time.

We disagree with the Program Executive Officers' position that they have performed an adequate analysis of alternatives. The Program Executive Office evaluated commercial off the shelf products only. They did not consider using or modifying existing DoD systems and they did not consider other concepts such as mounting a manpack on a high-mobility multipurpose wheeled vehicle.

---

## Appendix A. Audit Process

### Scope

We conducted the audit of the Ground Based Common Sensor System in response to a congressional request. This report addresses a pending Army contractual action; a second audit report will address the specifics of the congressional request. We conducted the audit from August 1998 through March 1999. During the audit, we reviewed the Program Executive Officer's plan to field four GBCS-Light Systems to the 82d Airborne Division to fulfill a 1988 Operational Needs Statement. We reviewed applicable documentation from July 1988 through March 1999. To accomplish our objective, we:

- reviewed the 1988 82d Airborne Division's Operational Needs Statement;
- reviewed GBCS-Light System test results from the combined test at Fort Huachuca in August 1998;
- reviewed the statement of work for the operational needs statement contract;
- reviewed the Operational Needs Statement Record Test Plan;
- reviewed a draft memorandum of agreement between the GBCS Program Office and the 82d Airborne Division; and
- interviewed the Contractors and Government personnel involved with the operational needs statement contract and fielding plans.

**DoD-Wide Corporate-Level Government Performance and Results Act Goals.** In response to the Government Performance and Results Act, the Department of Defense has established 6 DoD-wide corporate level performance objectives and 14 goals for meeting these objectives. This report pertains to achievement of the following objective and goal:

**Objective:** Prepare now for an uncertain future. **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key war fighting capabilities. (DoD-3)

**DoD Functional Area Reform Goals.** Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objective and goal:

**Objective:** Deliver great service. **Goal:** Deliver new major defense systems to the user in 25 percent less time. (ACQ-11)

**General Accounting Office High-Risk Area.** The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the Defense Weapons Systems Acquisition high-risk area.

---

## **Methodology**

**Use of Computer-Processed Data.** We did not rely on computer-processed data or statistical sampling procedures.

**Use of Technical Experts.** Personnel from the Audit Followup and Technical Support Directorate assisted us during the audit. Electronics Engineers reviewed the GBCS System operational requirement documentation and the test criteria and results from the combined test.

**Audit Period and Standards.** We performed this program audit from August 1998 through March 1999, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD.

**Contacts During the Audit.** We visited or contacted individuals and organizations within DoD, Lockheed Martin Federal Systems, Raytheon Systems Company, TRACOR Aerospace Electronic Systems, and Sanders Lockheed Martin. Further details are available on request.

## **Management Control Program Review**

DoD Directive 5010.38 requires DoD managers to implement a comprehensive strategy for management controls that provides reasonable assurance that programs are efficiently and effectively carried out in accordance with applicable law and management policy and to evaluate the adequacy of those controls. We will discuss the GBCS Program's management control program in our second audit report on the GBCS Program.

## **Summary of Prior Coverage**

No specific audits have been performed on the GBCS-Light System fielding to the 82d Airborne Division.

---

## **Appendix B. Report Distribution**

### **Office of the Secretary of Defense**

Under Secretary of Defense for Acquisition and Technology  
Deputy Under Secretary of Defense (Acquisition Reform)  
Director, Defense Logistics Studies Information Exchange  
Director, Defense Procurement  
Under Secretary of Defense (Comptroller)  
Deputy Chief Financial Officer  
Deputy Comptroller (Program/Budget)  
Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)  
Assistant Secretary of Defense (Public Affairs)  
General Counsel for the Department of Defense  
Director, Operational Test and Evaluation

### **Department of the Army**

Assistant Secretary of the Army (Financial Management and Comptroller)  
Auditor General, Department of the Army  
Program Executive Officer, Intelligence Electronic Warfare and Sensors  
Commander, Forces Command  
Commander, XVIII Airborne Corps  
Commander, 82d Airborne Division  
Director, Intelligence Electronic Warfare Test Directorate, Operational Test and Evaluation Command

### **Department of the Navy**

Assistant Secretary of the Navy (Financial Management and Comptroller)  
Auditor General, Department of the Navy

### **Department of the Air Force**

Assistant Secretary of the Air Force (Financial Management and Comptroller)  
Auditor General, Department of the Air Force

### **Other Defense Organizations**

Director, Defense Contract Audit Agency  
Director, Defense Logistics Agency  
Director, National Security Agency  
Inspector General, National Security Agency  
Inspector General, Defense Intelligence Agency  
Defense Systems Management College

---

## **Non-Defense Federal Organizations**

Office of Management and Budget  
General Accounting Office  
National Security and International Affairs Division  
Technical Information Center

## **Congressional Committees and Subcommittees, Chairman and Ranking Minority Members**

Senate Committee on Appropriations  
Senate Subcommittee on Defense, Committee on Appropriations  
Senate Committee on Armed Services  
Senate Select Committee on Intelligence  
Senate Committee on Governmental Affairs  
House Committee on Appropriations  
House Subcommittee on Defense, Committee on Appropriations  
House Committee on Armed Services  
House Committee on Government Reform  
House Subcommittee on Government Management, Information, and Technology,  
Committee on Government Reform  
House Subcommittee on National Security, Veterans Affairs, and International Relations,  
Committee on Government Reform  
House Permanent Select Committee on Intelligence



# Under Secretary of Defense for Acquisition and Technology Comments



ACQUISITION AND  
TECHNOLOGY

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3000

26 APR 1999

MEMORANDUM FOR OFFICE OF THE INSPECTOR GENERAL, DEPARTMENT  
OF DEFENSE

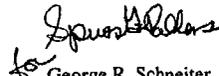
SUBJECT: Audit Report on Ground Based Common Sensor Fielding  
(Project No. 8AD-5033)

Thank you for the opportunity to comment on the draft *Audit Report on Ground Based Common Sensor Fielding*.

I concur with the findings and recommendations as written concerning the Army's pending contractual action for fielding four Ground Based Common Sensor (GBCS) systems to the 82d Airborne Division.

However, we have been advised that the Commanding General, 82d Airborne Division has decided not to accept the GBCS system and that the Army has no intention of procuring systems at this time. The 1988 Operational Needs Statement was revalidated on October 20, 1998, and the Program Manager, Intelligence and Electronic Warfare Common Systems is currently restructuring the GBCS program. The restructured program will be called Prophet. Per discussion with Mr. Robert K. West of your office, these factors were not to be considered in this report but will be specifically addressed in a separate DODIG report.

My point of contact is COL Bob Aultman at 695-1208 or aultmawr@acq.osd.mil.

  
George R. Schneiter  
Director  
Strategic and Tactical Systems



# Assistant Secretary of the Army (Acquisition, Logistics, and Technology) Comments



DEPARTMENT OF THE ARMY  
OFFICE OF THE ASSISTANT SECRETARY  
ACQUISITION LOGISTICS AND TECHNOLOGY  
103 ARMY PENTAGON  
WASHINGTON DC 20310-0103

12 APR 1999

REPLY TO  
ATTENTION OF

SARD-SA

MEMORANDUM FOR THE INSPECTOR GENERAL, DEPARTMENT OF DEFENSE  
(AUDITING)

SUBJECT: *Audit Report on Ground Based Common Sensor (GBCS) System Fielding*  
(Project No. 8AD-5033)

I have reviewed the subject report and the overall findings. Comments related to specific recommendations are included in the enclosure.

I have directed my staff to work closely with the Program Executive Office for Intelligence, Electronic Warfare and Sensors (PEO IEW&S), GBCS Product Manager and all other applicable Department of Defense Agencies to ensure all concerns and issues relevant to any future possible fielding of the GBCS-L system are appropriately addressed.

The SARDA point-of-contact is Mr. Bob Kusuda, (703) 604-7017, DSN 684-7017 or (email: kusudar@sarda.army.mil).

A handwritten signature in black ink, appearing to read "Peter C. Franklin".

PETER C. FRANKLIN  
Major General, GS  
Deputy for Systems Management and  
Horizontal Technology Integration

Enclosure:  
ASA(ALT) Comments

13 APR 1999

SARD-SA

**SUBJECT: Audit Report on Ground Based Common Sensor (GBCS) System  
Fielding (Project No. 8AD-5033)**

The following comments to subject report are provided:

**Recommendation 1a: We recommend that the Program Executive Officer, Intelligence Electronic Warfare and Sensors: Assess alternatives to meet the current 82nd Airborne Division's Operational Needs Statement.**

**Response: Concur**

**Rationale:** PEO, IEWS has already performed an assessment of the available systems/technology now available to satisfy the 82nd Airborne's Operational Needs Statement. Although several systems may have the potential to satisfy the requirement in the future, the only system that satisfies most of the requirements and provides a near-term capability is a highly modified GBCS-L system.

**Recommendation 1b: We recommend that the Program Executive Officer, Intelligence Electronic Warfare and Sensors: If it is determined that the Ground Based Common Sensor-Light Systems are the best solution, obtain a signed memorandum of agreement with the user before spending additional funds.**

**Response: Concur**

**Rationale:** A signed memorandum of agreement between the developer and user will ensure maximum understanding of the system's capabilities and deficiencies.

**Recommendation 2: We recommend that the Commander, 82nd Airborne Division, update the 1988 Operational Needs Statement using the Defense Intelligence Agency's validated threat data.**

**Response: Nonconcur**

**Rationale:** The Deputy Chief of Staff for Intelligence, Forces Command, revalidated the 82nd Airborne's Operational Needs Statement in October 1998. However, periodic revalidation of both requirements and threat should be performed using the most appropriate data available.

**Recommendation 3: We recommend that the Deputy Comptroller (Program and Budget) withhold funding until the Army has resolved the above issues.**

**Response: Nonconcur**

**Rationale:** The focus of the DODIG report was the proposed fielding of the modified GBCS-L to the 82nd Airborne Division. The resources associated with this effort were limited to the \$12.0M FY99 OPA funds. None of the \$16.3M FY99 RDTE funding was earmarked for the fielding effort. The RDTE resources support the Prophet program and should not be subject to any withhold resulting from the DODIG report.

# Program Executive Office Comments



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
PROGRAM EXECUTIVE OFFICE  
INTELLIGENCE, ELECTRONIC WARFARE AND SENSORS  
FORT MONMOUTH, NEW JERSEY 07703-5301

SFAE-IEW&S-BM

12 Apr 99

MEMORANDUM FOR Inspector General, Department of Defense  
400 Army Navy Drive, Arlington, VA 22202

SUBJECT: PEO IEW&S Response to Draft Audit Report on Ground  
Based Common Sensor System Fielding (Project No. 8AD-5033),  
dated March 25, 1999

1. I have reviewed the subject draft report and offer comments to same at Enclosure 1.
2. My staff and I remain available to you and your staff as we seek closure on this effort.
3. My principal point of contact within the PEO staff is Mr. Lou Catalano, Chief, Business Management Division. He can be reached at DSN 987-4743 or by email at [catalano@mail1.monmouth.army.mil](mailto:catalano@mail1.monmouth.army.mil).

Encl  
as

*David R. Gust*

DAVID R. GUST  
Major General, USA  
Program Executive Officer  
Intelligence, Electronic Warfare & Sensors

### Response to the DOD IG Draft Report

**Finding 1:** That the PEO IEWS assess alternatives to meet the current 82 AD ONS

**Response:** Concur

**Rationale:**

The PEO IEWS has already evaluated the ONS. The modified GBCS-L (GBCS-ONS) is the only system in existence that can capture modern modulations as required by the ONS. The entire Ground Based Common Sensor Program was based on the evaluation of the ONS from the 82d Airborne. Over the life of the program, there was requirements creep which resulted in the current ORD. The GBCS-L system in fact failed to meet the ORD. Upon this failure, the PEO IEWS decided to drop the increased ORD requirements and retrograde the requirements to only meet the needs of the 82d ONS. This resulted in, what is commonly called the GBCS-ONS. These requirements are significantly less than outlined in the current ORD and represents much less developmental risk. In fact, the system as envisioned for the GBCS-ONS meets all but two of the ONS requirements. In particular these are the requirement to setup and tear down in 8 and 3 minutes, respectively. The other requirement is to operate on the move. The requirement for onboard power was dropped by the 82d AD.

Directly following the GBCS-L test, the PEO IEWS again evaluated competing systems which could provide a meaningful SIGINT capability to the Army's Divisions. This evaluation was conducted using an independent consortium of Mitre Corp., National Security Agency and Lincoln Labs. The results showed that there were no readily available NDI systems that could meet the requirement to prosecute LPI signals.

In conclusion, the PEO IEWS concluded that the best approach to satisfy the 82<sup>nd</sup> AD ONS requirement was the modified GBCS-L, commonly called the GBCS-ONS.

**Finding 2:** If the GBCS-L is chosen, then a MOA should be executed with the 82<sup>nd</sup> AD.

**Response:** Concur

**Finding 3:** That the 82d AD update their ONS

**Response:** As this finding was directed to the 82<sup>nd</sup> AD, this office is not in a position to either concur or nonconcur. However, in a letter dated 20 Oct 98, the G2 FORSCOM revalidated the current 82<sup>nd</sup> AD ONS.

**Finding 4:** Recommend that the Deputy Comptroller (Program and Budget) withhold funding until the Army has resolved the other findings.

**Response:** Concur for FY 99 OPA funding, pending MOA with the 82<sup>nd</sup> AD MOA.  
Nonconcur if this finding intends to include FY 99 RDTE

**Rationale:**

Only a portion of the Program's 1999 funding deals with the findings outlined by the DoD IG. In particular, only the FY 1999 OPA funding is involved in these findings. The FY 1999 RDTE funding is earmarked with the Prophet Program with which there are no contentious issues.

**BELOW ARE MINOR CLARIFICATIONS/QUESTIONS OF THE REPORT**

**Under "Background"**

While it is true a mixture of three systems is required for the precision location capability, the requirement is to have at least one moving system and two other systems. These other systems can either be GBCS-L, GBCS-H, MEWSS or a combination.

Deleted

**Under "GBCS System Development"**

The report states that The GBCS Program office purchased the TACJAM, CHALS, and CMES from their respective program offices and provided them as GFE. In fact the TACJAM and CHALS were centrally developed by PM SW and provided to the GBCS Product Office as GFE. The CMES was purchased as an NDI item directly from the producer, Condor, and provided to the integration contractor as GFE.

Revised  
Page 4

**Under "GBCS System Development"**

The report states that "...the Army has spent about \$902M on the GBCS System and that none of the three configurations including the GBCS-L has met operational requirements." Only the GBCS-L was ever evaluated by an official DT/OT test. All three configurations did undergo customer tests to include the TF XXI AWE. The results of these customer tests indicated that the systems had enough operational utility to continue their development. Based on test results of the GBCS-L during official DT/OT, further development of the AQF and GBCS-H were terminated and the program was restructured.

Revised  
Page 5

The figure of \$902M includes the development costs of both the CHALS precision location and the TACJAM intercept and direction finding system. This GBCS/AQF Program was not the only recipient of this technology. Portions of this technology were successfully integrated into other Army program such as Guardrail Common Sensor (GRCS) and Air Reconnaissance Low (ARL), NSA special purpose systems, and joint service programs. Specifically, the CHALS-X is currently part of the GRCS and is flying in support of several worldwide SIGINT missions. A derivative of the TACJAM system, Superhawk, is being incorporated in the ARL program. The joint Low Band Sub-System (LBSS) program, is based on technology developed during the development of the TACJAM.

**Under "The GBCS-Light System Fielding Plan"**

The report states that the common fixes do not include anything to specifically improve the LPI intercept capability. The ONS effort does include specific antenna accuracy improvements that enhance DF sorting capability thereby improving the system's LPI capability. Additionally, the \$910K of negotiation costs, referenced in the report, is included as part of the \$26M overall effort.

Deleted  
Revised  
Page 6

**Under "82<sup>nd</sup> Acceptance of GBCS-Light Systems"**

The report states "The 82<sup>nd</sup> Airborne Division would be handicapped in its ability to operate in a Joint environment". This is not true. The GBCS-ONS uses the SAME communications system as the currently fielded system (ARC-164) and would use the same sub-systems as the Marine MEWSS. In fact GBCS automates many of the required message formats the current system does not thus reducing the load on the soldier.

Deleted

The report states "Without a fully defined Life Cycle Sustainment Program...GBCS would create a strain". The GBCS system has a fully defined Life Cycle Sustainment Program. This is based on an organic support at the DS level and CLS at the GS level and above. This is a proven approach that provides the soldier the proper support required. The GBCS ONS version will have a guaranteed minimum of 17 hrs MTBSA. This is over a 100% improvement in the currently fielded system thus reducing the risk to the 82<sup>nd</sup> AD.

Deleted

---

The report states that "having a unique system would cause personnel and training risks." Although TRADOC does not plan to have formal training available at Ft. Huachuca, the CLS package includes formal training that will be available at anytime the unit requires. This surpasses the unit's requirements.

# 82<sup>nd</sup> Airborne Division Comments



REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY**  
HEADQUARTERS, XVIII AIRBORNE CORPS AND FORT BRAGG  
FORT BRAGG, NORTH CAROLINA 28307-5000

AFZA-CS-I (36-5)

MEMORANDUM FOR Office of the Inspector General, Department of Defense,  
400 Army Navy Drive, Arlington, VA 22302

SUBJECT: Audit Report on Ground Based Common Sensor System Fielding  
(Project No. 8AD-5033)

1. Reference Inspector General, Department of Defense draft audit report on Ground Based Common Sensor System Fielding, 25 March 1999.
2. Enclosed is our Command Reply to the referenced draft report.
3. Point of contact is Mr. McNamara, Internal Review, 910-396-7375.

FOR THE COMMANDER:

Encl  
as

  
JOHN R. VINES  
Brigadier General, GS  
Chief of Staff

COMMAND COMMENTS

Inspector General, Department of Defense Audit Report on Ground Based  
Common Sensor System Fielding

2. Recommendation: We recommend that the Commander, 82d Airborne  
Division, update the 1988 Operational Needs Statement using the  
Defense Intelligence Agency's validated threat data.

Command Reply: Nonconcur. Recommendation 1a is out of date. The  
Commanding General, 82d Airborne Division decided, on 29 Mar 99, to  
end participation in the GBCS-L program.

Recommendation 2 implies the 82d Airborne Division Operational Needs  
Statement (ONS) is incompatible with validated threat data from  
Defense Intelligence Agency (DIA). If analysis is done of the  
Division's ONS (1988) and the Prophet Ground component of the Prophet  
Operational Requirements Document (ORD) (Version 8, 1999), the two  
documents are very close. If DIA's validated threat data makes the  
Division's ONS data out of date, then it will do the same for the  
Prophet Ground portion of the Prophet ORD (1999). Again, the  
Commanding General, 82d Airborne Division decided, on 29 Mar 99, to  
end participation in the GBCS-L program.

## **Audit Team Members**

The Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD, prepared this report.

Thomas F. Gimble  
Robert K. West  
Eleanor A. Wills  
Lois J. Wozniak  
James B. Mitchell  
Stanley J. Arceneaux  
Lisa M. Such  
Jaime A. Bobbio  
Wei K. Chang