

Audit



Report

OFFICE OF THE INSPECTOR GENERAL

**ALLEGATIONS CONCERNING THE HUNTER
UNMANNED AERIAL VEHICLE-SHORT RANGE
PROGRAM**

Report No. 95-095

February 3, 1995

Department of Defense

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Acronyms

MILSTD	Military Standard
OSHA	Occupational Safety and Health Administration
UAV-SR	Unmanned Aerial Vehicle-Short Range



INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884



Report No. 95-095

February 3, 1995

**MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION
AND TECHNOLOGY
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL
MANAGEMENT)
ASSISTANT SECRETARY OF THE AIR FORCE
(FINANCIAL MANAGEMENT AND COMPTROLLER)
DIRECTOR, DEFENSE CONTRACT AUDIT AGENCY
DIRECTOR, DEFENSE LOGISTICS AGENCY
AUDITOR GENERAL, DEPARTMENT OF THE ARMY**

**SUBJECT: Audit Report on Allegations Concerning the Hunter Unmanned
Aerial Vehicle-Short Range Program (Project No. 4CA-5028)**

Introduction

We are providing this report for your information and use. The audit was performed in response to an inquiry from Senator John McCain and Representative Jim Kolbe. The inquiry resulted from a constituent's allegation of improper management and ethics violations by TRW, Incorporated (TRW), San Diego, California, on the Hunter unmanned aerial vehicle-short range (UAV-SR) program. The constituent alleged that TRW committed several business ethics violations that affected TRW performance on the UAV-SR contract N00019-89-C-0346.

The Navy is currently reviewing other allegations concerning the Pioneer UAV program.

Audit Results

Although some of the allegations were partially or fully substantiated, TRW actions to resolve the issues in the allegations were considered satisfactory. The audit of the complainant's allegations of improper management and ethics violations by TRW on the Hunter UAV-SR program determined the following:

- TRW electronics repair work complied with applicable military standards.
- TRW investigated the alleged safety and health violations, after the complainant's allegations were disclosed. During November 1993, an inspection performed by the Industrial Commission of Arizona confirmed that the reported safety hazards did not represent a violation of applicable safety and health standards.
- TRW did not improperly dispose of confidential and secret documents. The Defense Investigative Service, Davis-Monthan Air Force Base, Arizona, found the documents in question to be unclassified.

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- TRW acknowledged that its employees had worked on personal projects during official work hours. During April 1993, when notified of the situation, TRW instructed its employees to discontinue working on hobby-related projects on company premises and to remove all personal property from the model shop.
 - TRW employees did not violate TRW Personnel Policy Manual guidance regarding temporary or indefinite relocation expenses.
 - TRW did not charge the Government for the replacement costs of stolen or misplaced maintenance tools.
 - During January 1993, to prevent TRW from performing uncontrolled UAV part substitution, the Joint UAV Project Office established guidance to ensure adequate and accurate configuration, quality, and logistics control over the Hunter UAV-SR system.
 - As a result of numerous Hunter UAV-SR air vehicle accidents, during August 1993, TRW established formal external pilot and air vehicle operator instructor training standards to standardize and improve instructor knowledge and capabilities.
 - TRW purchases from its remote control aircraft supplier were in accordance with TRW-approved procurement practices; however, TRW employees failed to file TRW conflict of interest disclosure forms in a timely manner. The forms have since been filed.
 - The Office of General Counsel, DoD, concluded that the TRW hiring of a retired Army colonel did not violate title 10, United States Code, section 2397b, "Certain Former Department of Defense Procurement Officials: Limitation on Employment by Contractors," which restricts certain former civilian and military personnel from accepting compensation from contractors.
 - The Army spent \$29,036 to upgrade a private individual's runway. However, the runway was upgraded to be used as a training site while existing UAV runways at Fort Huachuca, Arizona, were being improved.

Objectives

The primary audit objective was to evaluate allegations involving the Hunter UAV-SR program. Specifically, the audit evaluated allegations concerning TRW performance of the Hunter UAV-SR contract. The audit also evaluated the effectiveness of internal controls applicable to the primary audit objective.

Scope and Methodology

Audit Methodology. We reviewed TRW records related to contract N00019-89-C-0346 to ascertain the merit of the allegations. Specifically, we reviewed:

- employee time cards for the period from November 1992 through April 1993,
- purchase orders and supporting documentation for the period from August 1992 through June 1994,
- employee travel vouchers for the period from March 1991 through November 1992, and
- policy and procedure manuals.

We also interviewed TRW management, Government procurement officials, and Government contract administration personnel.

Audit Period, Standards, and Locations. This economy and efficiency audit was performed from April through November 1994 in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD. Accordingly, we included such tests of internal controls as were considered necessary. We did not rely on any computer-processed data or statistical sampling procedures to perform the audit. Enclosure 1 lists the organizations visited or contacted during the audit.

Internal Controls

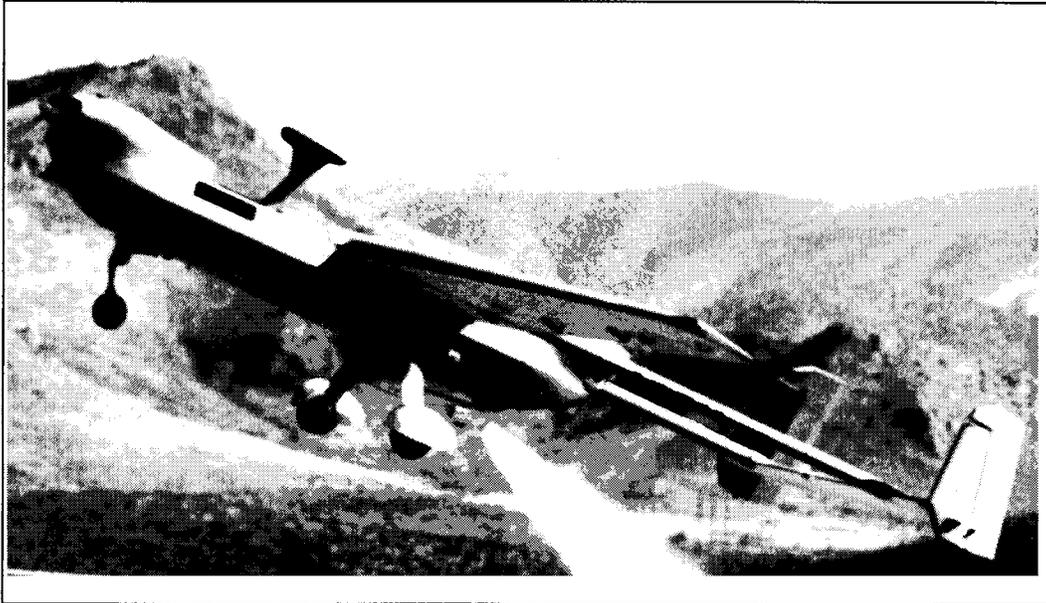
We evaluated internal controls applicable to the various allegations. Specifically, we evaluated TRW policy and procedures manuals, Government reviews of TRW property systems, and TRW support documentation. We also interviewed cognizant Government and contractor personnel. Our audit disclosed no material internal control weaknesses. Therefore, we did not review the implementation of the DoD Internal Management Control Program as it applied to the primary audit objective.

Prior Audits and Other Reviews

The General Accounting Office is currently performing a review and has previously reported on the technical and performance capabilities of the UAV-SR program; however, no previous audits or other reviews directly relating to these allegations have been identified.

Background

The Hunter UAV-SR is a short-range, small fixed-wing aircraft that can be remotely piloted from a ground control station (figure). Its primary mission is to relay near-real-time video and telemetry information from target areas as much as 150 kilometers away to battlefield commanders. The Hunter UAV-SR surveillance range can be increased by relaying commands and imagery between a forward and rear UAV-SR.



Hunter UAV-SR with Remote Piloting Capability from a Ground Control Station

In March 1989, the Hunter UAV-SR acquisition began with a formal request for proposal for a short-range UAV. On September 15, 1989, after evaluating the submitted proposals, two firm-fixed-price contracts were awarded to McDonnell Douglas Missile Systems Company and Israeli Aircraft Industries. The contracts were awarded for the development and delivery of a short-range UAV system for a technical evaluation and a limited user test conducted by U.S. military personnel.

After evaluating the data collected from the technical evaluation and limited user test of the Hunter UAV-SR, a Government source selection board chose Israeli Aircraft Industries as the prime contractor for the short-range UAV contract. Contract N00019-89-C-0346 is a firm-fixed-price contract that includes requirements for training military personnel and includes production of the Hunter UAV-SR system.

TRW involvement with the Hunter UAV-SR began in 1990 with its teaming agreement with Israeli Aircraft Industries. The teaming agreement split work between the two companies during Phase I of the contract. Phase I was for the development of a short-range UAV system for the limited user test and technical evaluation. After submitting a transition plan to the Government for TRW to become the prime contractor on the short-range UAV program, TRW executed conditional subcontracts with Israeli Aircraft Industries and its prime supplier. In December 1992, TRW novated the contract (assumed the contractual and financial responsibilities of the contract from Israeli Aircraft Industries) as the prime contractor. In February 1993, the Defense Acquisition Board awarded the low-rate initial production (Phase II) option to TRW. The Phase II option was awarded as an undefinitized contractual action not to exceed \$171,111,895.

Discussion

The following are the complainant's allegations that TRW committed business ethics violations that affected TRW performance of the UAV-SR contract N00019-89-C-0346. The results of the audit are discussed after each allegation.

Compliance With Military Standards for Electronic Repair Work. TRW avionics technicians were not certified in accordance with Military Standard 2000 (MILSTD 2000) to perform electronic repair work on the Hunter UAV-SR system.

Audit Results. The allegation was not substantiated. MILSTD 2000 establishes general requirements for materials and procedures for making soldered electrical and electronic connections. MILSTD 2000 has two requirements: the first requirement applies general workmanship standards, while the second requirement applies stricter standards. According to MILSTD 2000, the general workmanship standards shall apply unless the requirement specifically refers to the more stringent standards, which includes any of the seven specifically listed tasks that are to be performed.

Contract N00019-89-C-0346 detail specifications apply the requirement for MILSTD 2000. For soldering work, the contract requires that MILSTD 2000, task G, "Controlled Process Manufacturing," shall apply to any new design. The application of task G requires the contractor to also apply MILSTD 2000, task A, "Certification of Contractor Personnel." Task A requires the contractor to have at least one instructor-examiner. The contract also specifies that MILSTD 2000 general workmanship standards shall be required for existing designs.

The allegation is not substantiated because, during Phase II of the UAV contract, TRW is only performing integration and test of components from TRW subcontractors. TRW is anticipating new design work when it establishes a depot for maintenance and spare parts. In anticipation of new design work, TRW had an individual trained and certified as an instructor in accordance with MILSTD 2000 requirements.

Safety Operating Practices. TRW operated in an unsafe manner. The complainant identified various safety and health hazards at the TRW "Black Tower Complex" and the Sierra Vista Flight Logistics Center, Sierra Vista, Arizona. Specifically, TRW inadequately stored resins, hardeners, and other flammable materials.

Audit Results. TRW investigated the alleged safety and health violations, after the complainant's allegations were disclosed. The allegations were addressed by the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, Phoenix, Arizona. OSHA received the allegations on July 22, 1993, and informed TRW that OSHA did not intend to conduct an inspection. However, OSHA required TRW to investigate the alleged conditions and make any necessary corrections. OSHA also required TRW to report within 15 days the results of TRW investigation and to provide support concerning any corrective actions.

On August 9, 1993, TRW responded to the OSHA request by stating the results of its investigation. TRW took actions to correct any noted safety or health hazards and reported them to OSHA as required.

The Division of Occupational Safety and Health, Industrial Commission of Arizona, required TRW to investigate the alleged safety or health hazards and report any corrected actions taken. TRW reported its investigation results and corrected actions taken.

On November 10, 1993, the Industrial Commission of Arizona conducted an inspection of the TRW facility in Sierra Vista, Arizona. The inspection revealed that the reported safety hazards did not represent a violation of the applicable OSHA standards.

Classified Documents Security. TRW did not properly safeguard confidential and secret materials. The complainant stated that he was provided illustrations marked confidential and secret and, when he informed TRW management of the situation, he was told to take the documents home and burn them in his fireplace.

Audit Results. This allegation was found to be unsubstantiated by the Defense Investigative Service. Instead of burning the documents, the complainant turned over the materials to the Defense Investigative Service. The Defense Investigative Service forwarded the materials to the Naval Air Systems Command, which then forwarded the materials to the Joint Tactical UAV Office, Redstone Arsenal, Alabama, for determination as to classification. The Defense Investigative Service was informed by the Joint Tactical UAV Office that the documents were unclassified.

Charges to the Government. Improper charges were made to the Government involving TRW employee labor charges and travel expenditures charged to the UAV contract.

Employee Labor Charges. On numerous occasions, TRW employees worked on personal radio control airplanes during official work hours, and TRW management took no disciplinary action against the employees.

Audit Results. The allegation that TRW employees were working on personal projects during official work hours was partially substantiated. When the complainant notified TRW management of the problem on April 26, 1993, TRW investigated the matter and concluded that no time charging violations occurred because the employees extended their work day to compensate for the personal time taken. Although time was not mischarged, TRW instructed the involved employees to remove all personal projects and property from the company premises. Even if the employees did charge personal time to the contract, the Government would not have been affected, because the Hunter UAV-SR contract is firm-fixed priced. Review of employee time cards for the period from November 1992 through April 1993 showed that employee labor hours were charged to a direct cost objective under the UAV-SR contract. TRW has established timecharging procedures and policies, and existing employees are instructed on timecharging periodically, while new employees are provided time card preparation training during the new hire orientation. TRW also has a hotline for employees to report possible violations of company policies and potential misconduct.

Employee Travel Expenditures. TRW employees claimed per diem costs for lodging and meals when staying with friends or other employees at no cost.

Audit Results. The allegation was not substantiated. TRW employees did not violate TRW Personnel Policy Manual guidance regarding temporary or indefinite relocation expenses. The employees in question were reimbursed for expenses according to a TRW memorandum of understanding. The memorandum of understanding provided for temporary domestic relocation expenses for employees relocated to field locations in support of the UAV-SR project. The memorandum of understanding describes the specific level of relocation allowance and assistance costs authorized for each employee. The employees were paid a flat per diem rate for temporary relocation expenses and were also compensated for a reduced standard of living.

Contract Property Accountability. During the first 2 years of the Hunter UAV-SR program, controls over maintenance tools had been extremely lax. Specifically, tools housed in a mobile maintenance facility had to be replaced several times because of theft, and the replacement costs were charged to the Government.

Audit Results. The allegation was not substantiated. When Hunter UAV-SR systems are delivered to the Government, the UAV-SR systems are temporarily transferred back to TRW for accomplishing the system personnel training requirements of contract N00019-89-C-0346. During the transfer process, the mobile maintenance facility standard tool kits are inventoried, and shortages are replaced at no cost to the Government. The mobile maintenance facility provides field operation and maintenance support for the Hunter UAV-SR system.

Spare Parts Availability and System Parts Substitution. The availability of spare parts has resulted in system cannibalization and inaccurate configuration management of the Hunter UAV-SR system.

Audit Results. The allegation was partially substantiated. The availability of spare parts has resulted in system cannibalization and inaccurate configuration management of the Hunter UAV-SR system. Spare parts for the Hunter UAV-SR system were not procured during the Phase I contract because competing contractors were not willing to invest in a spare parts inventory. The lack of spare parts availability resulted in TRW performing uncontrolled parts substitution between UAVs. On January 15, 1993, the Joint UAV Project Office issued guidance to TRW concerning configuration management to ensure adequate and accurate configuration, quality, and logistics control over the UAV-SR system. The project office guidance also required Government approval before parts substitution involving Government UAV-SR systems. TRW maintains an "as built" configuration list of each UAV-SR system and provides weekly updates to the Joint UAV Project Office.

TRW, under the Phase II contract, procured \$24.1 million in spare parts with deliveries starting in January 1994 and ending in July 1995. As of July 1994, 61 percent of operational testing spare parts had been received with a completion date of October 1994, and 42 percent of field spare parts had been received with a completion date of November 1994.

TRW Instructor Training. The Hunter UAV-SR external pilot or air vehicle operator instructors' training and proficiency were inadequate and have contributed to accidental mishaps of the Hunter UAV-SR aircraft.

Audit Results. The allegation was substantiated. Review of accident incident reports from 1991 to 1993 showed that for 5 of 11 Hunter UAV-SR accidents, lack of operator proficiency contributed to the accidental mishaps. Before August 1993, TRW did not have a formal UAV-SR instructor qualification program or written proficiency requirements for either external pilot or air vehicle operator instructors. The external pilot controls the Hunter UAV-SR aircraft during takeoffs and landings while the air vehicle operator controls the Hunter UAV-SR aircraft during operational maneuvers from a ground control station.

During August 1993, TRW established formal external pilot and air vehicle operator instructor training standards and proficiency requirements to standardize and improve instructor knowledge and capabilities. TRW established three levels of training and qualifications for Hunter UAV-SR flight instructors, which include UAV range, launch and recovery, and aerial vehicle relay qualifications. Each level requires ground school training and minimum flight hours before qualification flights. The following table shows the minimum flight hours required for each level.

Instructor Training and Qualification Levels	
<u>Training and Qualification Levels</u>	<u>Minimum Flight Hours Required</u>
Range	18
Launch and Recovery	13
Aerial Vehicle Relay	17

TRW also established a proficiency requirement for external pilots and air vehicle operators to perform every 60 days.

Procurement Practices. The TRW system for procuring radio control aircraft parts operated unethically and represented a conflict of interest. Specifically, spare parts were purchased only from a supplier with direct interest relations to TRW employees. A TRW employee is directly related to the owners of the parts supplier and the parts supplier also sponsors another TRW employee, who was also a former employee of the supplier, at remote control airplane competitions.

Audit Results. The allegation was not substantiated. However, TRW employees failed to file TRW conflict of interest disclosure forms in a timely manner. The Hunter UAV-SR system training program for the military includes training personnel using radio control aircraft and one-third-scale Hunter aircraft models before actually flying the full-scale Hunter UAV-SR. TRW purchases the radio control aircraft and constructs the one-third-scale aircraft for the training program. Review of 29 TRW purchase orders dated from August 1992 through June 1994 showed that TRW purchases from the parts supplier in question were in accordance with TRW documented procurement procedures. Of the 29 purchase orders, 6 were more than \$2,500, for a total of \$61,194, and 23 were less than \$2,500, for a total of \$16,995. TRW procurement procedures require competition be attempted for purchases valued more than \$2,500. Competition was attempted or achieved for all six purchases more than \$2,500 and for the initial four purchases less than \$2,500. All of the spare parts and material purchases were awarded by purchasing department personnel independent from the TRW employees either related to, or sponsored by, the parts supplier in question.

However, the TRW employees in question did not comply with TRW conflict of interest procedures because the employees did not file the proper disclosure forms in a timely manner. Although TRW management was fully aware of the conflicts of interest, the proper disclosure documents were not filed until April and July 1994.

TRW Hiring of a Retired Military Officer. TRW improperly hired a retired Army colonel who previously was the Director, Intelligence Electronic Warfare Test Directorate, Army Test and Experimentation Command, during the Hunter UAV-SR system limited user test. The complainant claimed that the hiring of this retired colonel by TRW represented a conflict of interest.

Audit Results. The allegation was not substantiated. We obtained the opinion of the Office of General Counsel, DoD, to determine whether the retired Army colonel, now working for TRW, has violated title 10, United States Code, section 2397b, "Certain Former Department of Defense Procurement Officials: Limitation on Employment by Contractors." Title 10, United States Code, section 2397b, restricts certain former civilian and military personnel, including retirees, from accepting compensation from a contractor during the 2-year period beginning on the date of such person's separation from service in DoD.

The General Counsel concluded that the retired officer did not perform a procurement function relating to a contract or to a major Defense system of the particular contractor for a majority of working days in the 2 years preceding his retirement. Instead, the officer was only involved in testing the contractor's system during a comparatively short period in 1992. Further, the retired officer's principal place of duty was not at the contractor's location, but rather at a Government test facility. Finally, the officer did not act as primary representative in negotiating a contract or claim in excess of \$10 million with the contractor.

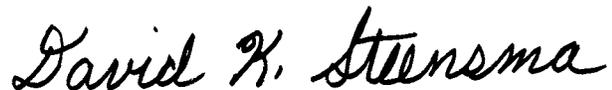
Use of Defense Funds to Improve a Private Individual's Aircraft Runway. The Army improved a private individual's aircraft runway to be used for operating the Hunter UAV-SR. Further, the runway improvements were to compensate the individual for Hunter UAV-SR crashes occurring on the individual's land. The individual's runway in its present condition was unusable and appeared to be a fraudulent waste of Defense dollars.

Audit Results. The allegation was not substantiated. The Army considered the use of the private aircraft runway as a temporary solution to support Hunter UAV-SR training because existing runways on Fort Huachuca were inadequate for Hunter UAV-SR requirements. In July 1989, Fort Huachuca was designated as the joint UAV training center for DoD. However, Fort Huachuca existing UAV runways were too short for the Hunter UAV-SR system. The Army expended \$29,036 to upgrade the private dirt airstrip to support Hunter UAV-SR training in the interim while the existing two Fort Huachuca UAV runways were expanded to support the Hunter UAV-SR systems. The improvements to the private dirt airstrip consisted of grading, rolling, and expanding the airstrip width to accommodate the operation of the Hunter UAV-SR. The Army also entered into a 5-year no-cost lease with the right of access to the airstrip year round. Subsequently, in August 1994, an existing runway on Fort Huachuca was improved and completed to support the Hunter UAV-SR.

Management Comments

We provided a draft of this report to management on December 21, 1994. Because this report contains no findings and recommendations, written comments were not required, and none were received.

Courtesies extended to the audit staff are appreciated. If you have any questions on this audit, please contact Mr. Timothy J. Staehling, Audit Project Manager, (703) 604-9256 (DSN 664-9256). The distribution of this report is listed in Enclosure 2. The audit team members are listed inside the back cover.



David K. Steensma
Deputy Assistant Inspector General
for Auditing

Enclosures

Organizations Visited or Contacted

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology, Washington, DC
Director, Defense Procurement, Washington, DC

Department of the Army

Auditor General, Department of the Army, Washington, DC
System Manager, Unmanned Aerial Vehicles, Training and Doctrine Command,
Fort Huachuca, AZ
Washington Fraud Team, Army Criminal Investigation Command, Fort Meade, MD

Department of the Navy

Assistant Secretary of the Navy (Financial Management), Washington, DC
Assistant Secretary of the Navy (Research, Development, and Acquisition),
Washington, DC
Inspector General, Naval Air Systems Command, Arlington, VA
Project Executive Office for Cruise Missiles and Unmanned Aerial Vehicles, Naval Air
Systems Command, Arlington, VA

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller),
Washington, DC
Deputy Assistant Secretary of the Air Force (Contracting), Washington, DC

Defense Organizations

Director, Defense Contract Audit Agency, Alexandria, VA
Western Region Resident Office, TRW, Incorporated, Redondo Beach, CA
Director, Defense Logistics Agency, Alexandria, VA
Defense Contract Management Area Operations Phoenix, AZ
Defense Contract Management Area Operations San Diego, CA
Resident Agent, Defense Investigative Service, Davis-Monthan Air Force Base, AZ

Organizations Visited or Contacted

Non-Defense Federal Organizations

National Security and International Affairs Division, General Accounting Office,
Washington, DC

Non-Government Organizations

Avionics and Surveillance Group, TRW, Incorporated, San Diego, CA
Unmanned Aerial Vehicle Systems Division, San Diego, CA
Unmanned Aerial Vehicle Flight and Logistics Center, Sierra Vista, AZ

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House Subcommittee on National Security, International Affairs, and Criminal Justice,
Committee on Government Reform and Oversight
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