

W

December 21, 1999

TO: M/Associate Administrator for Space Flight
AA/Director, Lyndon B. Johnson Space Center

FROM: W/Assistant Inspector General for Auditing

SUBJECT: Final Report on the Audit of Raytheon Subcontract Management
Assignment Number A9905800
Report Number IG-00-002

The subject final report is provided for your use and comment. Please refer to the Executive Summary for the overall audit results. Our evaluation of your response is incorporated into the body of the report. The corrective actions completed for the recommendations were responsive. Management's actions are sufficient to close the recommendations for reporting purposes.

If you have questions concerning the report, please contact Mr. Lorne A. Dear, Program Director for Procurement Audits, at (818) 354-3360; Ms. Nora Thompson, Audit Program Manager, at (757) 864-3268; or Mr. Douglas Orton, Auditor-in-Charge, at (281) 244-1159. We appreciate the courtesies extended to the audit staff. See Appendix C for the report distribution.

[original signed by]
Russell A. Rau

Enclosure

cc:
AO/Chief Information Officer
B/Chief Financial Officer
B/Comptroller
BF/Director, Financial Management Division
G/General Counsel
H/Associate Administrator for Procurement
JM/Director, Management Assessment Division

bcc:

JPL/W/Director, Procurement Audits

JSC/BD5/Audit Liaison Representative

JSC/W/Auditor-in-Charge

LaRC/W/Program Manager, Procurement

SSC/W/Staff Auditor

IG-00-002

**AUDIT
REPORT**

RAYTHEON SUBCONTRACT MANAGEMENT

December 21, 1999



National Aeronautics and
Space Administration

OFFICE OF INSPECTOR GENERAL

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Reader Survey

Please complete the reader survey at the end of this report or at <http://www.hq.nasa.gov/office/oig/hq/audits.html>.

Acronyms

DCMC Defense Contract Management Command
FAR Federal Acquisition Regulation

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NASA Office of Inspector General

IG-00-002
A9905800

December 21, 1999

Raytheon Subcontract Management

Executive Summary

Background. Under NASA contract NAS9-18181, Raytheon Technical Services Company provides development, maintenance, operations, and sustaining engineering for the Space Station Training Facilities and the Part Task Trainer.¹ The cost-plus-award-fee contract began on October 23, 1989, and runs through April 30, 2003. Negotiated contract costs total about \$595.1 million.²

Raytheon has an approved purchasing system and authority to award subcontracts through January 24, 2000. The contract requires Raytheon to subcontract on a competitive basis to the maximum practical extent. The subcontracts awarded since contract award through August 20, 1999, total about \$134.7 million, or about 23 percent of total negotiated costs. To issue subcontracts valued at more than \$500,000, Raytheon must first obtain written consent from the NASA contracting officer.

Objectives. The overall audit objective was to determine whether Raytheon appropriately awarded and effectively managed subcontracting activities on NASA's contract with Raytheon. Additional details on the objectives, scope, and methodology are in Appendix A.

Results of Audit. Raytheon officials appropriately awarded and effectively managed subcontracting activities on contract NAS9-18181, except for maintaining supporting justifications of noncompetitive procurements. NASA officials incorporated the required contract clauses into the prime contract, and Raytheon officials incorporated the clauses into subcontracts. Also, Raytheon officials appropriately obtained consents-to-subcontract for subcontracts valued at more than \$500,000 as required by the contract. However, our review of four noncompetitive procurements with a total value of \$399,300 showed that Raytheon officials did not maintain supporting documentation for the justifications for the noncompetitive procurements. As a result, NASA has reduced assurance that the contractor maximized the competition of its subcontracts.

¹ The Part Task Trainer is a single system, stand-alone training device designed to provide subsystem training for the Space Station Distributed Systems.

² The amount consists of \$562.5 million in estimated costs and \$32.6 million in contractor fees.

Summary of Recommendations. Management should direct Raytheon to maintain adequate documentation to support justifications for noncompetitive procurements. Additionally, management should ask the NASA contracting officer and the Defense Contract Management Command (DCMC) to include reviews for supporting documentation in their respective purchasing system reviews. We believe that these actions will provide additional assurances that Raytheon officials select subcontractors on a competitive basis to the maximum practical extent as required by the Federal Acquisition Regulation.

Management's Response. Management concurred with each recommendation. The complete text of the response is in Appendix B. We consider management's comments responsive.

Introduction

NASA ensures oversight of contractor management of subcontracts in two ways. First, the DCMC, with assistance from the Defense Contract Audit Agency, conducts a review of the contractor's purchasing system. The review is designed to evaluate the efficiency and effectiveness with which the contractor spends Government funds and complies with Government subcontracting policy. The review also provides the contracting officer a basis for granting, withholding, or withdrawing approval of the contractor's purchasing system. At least every 3 years after the initial review, the cognizant contracting officer determines whether a subsequent purchasing system review is necessary. Based on a January 1996 purchasing system review, the NASA contracting officer approved Raytheon's procurement system on March 12, 1996. Second, the NASA contracting officer must maintain surveillance sufficient to ensure that contractor purchasing efforts, in support of NASA contracts, are accomplished appropriately and protect Agency interests. The surveillance is accomplished primarily through performance of consent reviews,³ but may include other methods of surveillance such as periodic reviews of contractor purchasing records. On a yearly basis, the NASA contracting officer determines whether the approval of the contractor's purchasing system should be extended based on the volume of subcontracting business, the type of subcontract business, and the quality of subcontracts submitted for consent during the prior year.

³ The contracting officer must review and consent to Raytheon subcontracts costing more than \$500,000 and may select potential subcontracts greater than \$25,000 for special surveillance.

Finding and Recommendations

Supporting Documentation for Noncompetitive Procurements

For the four noncompetitive procurements we examined, Raytheon purchasing department buyers did not maintain documentation to support justifications for noncompetitive procurements. This condition occurred because Raytheon procurement policy does not require Raytheon personnel to keep supporting documentation. Additionally, Government oversight reviews of the contractor's procurement system did not include examinations of supporting documentation for noncompetitive procurements. As a result, NASA has reduced assurance that the contractor obtained fair and reasonable prices through competition whenever practical.

Federal Acquisition Regulation, NASA, and Raytheon Requirements

Federal Acquisition Regulation (FAR), Part 10, "Market Research," requires Government agencies to conduct market research to identify available sources of supply and determine whether a noncompetitive award is appropriate. Agencies must document the results of market research in a manner appropriate to the size and complexity of the acquisition. To be an effective management control, the documentation should be available and easily accessible for examination.

NASA FAR Supplement, Part 1844.304-70, requires the NASA contracting officer to maintain a sufficient level of surveillance to ensure that contractor purchasing efforts in support of NASA contracts are accomplished in an appropriate manner. The surveillance is to be accomplished primarily through performance of subcontract consent reviews, but may include other methods, including periodic reviews of contractor purchasing records. The NASA FAR Supplement does not delineate specific procedures the contracting officer should perform as part of the surveillance review.

To ensure maximum practical competition in subcontract awards, buyers at Raytheon implemented procurement practice 8-5-1, "Source Selection," dated July 31, 1997. The policy requires Raytheon buyers to document the rationale for noncompetitive procurements based on information received from requesting organizations and other available data.

Justifications for Noncompetitive Procurements

For all four noncompetitive procurements we reviewed,⁴ purchasing department files did not contain documentation that described the marketing research referred to in the justifications for

⁴ We judgmentally selected 4 of 17 noncompetitive procurements included in our audit sample for detailed reviews of supporting documentation.

noncompetitive procurements. For two of the four procurements, the justifications stated only that engineering had conducted a “market survey.” The justification for one procurement stated that engineering had “queried the market,” and the justification for another procurement stated that engineering had “evaluated the marketplace.” The following table provides relevant data on the four subcontracts we reviewed.

Noncompetitive Procurements Reviewed for Documentation Supporting Market Research

Subcontract	Type of Market Research Conducted	Basis for not Competing The Subcontract	Subcontract Value (\$000)
P22248	Market Survey	Only one responsible source	\$240.8
P22643	Market Survey	Only one responsible source	53.1
N3627	Market Query	Only one responsible source	34.0
N4143	Market Evaluation	Only one responsible source	<u>71.4</u>
			<u>\$399.3</u>

FAR, Part 6, Competition Requirements, states that only one responsible source is an allowable basis for not competing subcontracts. According to the FAR, full and open competition need not be provided for when the required supplies or services are available for only one or a limited number of responsible sources. However, purchasing department files did not contain documentation describing the scope and results of the market research. Raytheon officials could not provide supporting documentation to the audit team.

Raytheon Policy

Raytheon procurement practice 8-5-1 does not specifically require Raytheon personnel to maintain documentation supporting the justifications for noncompetitive procurements. In addition, the policy does not describe the types of documentation and information that Raytheon personnel requesting purchases should develop to support the justifications.

Reviews by DCMC and the NASA Contracting Officer

Prior DCMC and NASA contracting officer reviews of Raytheon’s purchasing system were not designed for detailed examinations of the contractor’s supporting documentation for justifications. In January 1996, DCMC reviewed the Raytheon purchasing system and found that Raytheon awarded only 28 percent of the total dollar value of sampled subcontracts on a competitive basis. DCMC’s

report on the review states that Raytheon had prepared written justifications for 97 percent of sampled, noncompetitive procurements, but DCMC did not examine documentation supporting the justifications.

NASA contracting officers conducted consent to subcontract reviews on four noncompetitive subcontracts that Raytheon issued from March 29, 1996, through April 28, 1998. As part of the reviews, the NASA contracting officer examined the subcontract documentation Raytheon submitted. However, the reviews did not examine documentation supporting the justifications because the contracting officer did not require the contractor to submit the supporting documentation.

Effect on Competition and Oversight Reviews

Supporting documentation for justifications of noncompetitive procurements is needed to provide NASA assurance of adequate competition in subcontract awards and to facilitate oversight reviews. Supporting documentation shows evidence of market survey steps and vendor responses. With adequate supporting documentation, NASA has enhanced assurance that Raytheon awarded subcontracts to the best available source, despite the absence of competition. Also, Government personnel performing oversight reviews can better assess the justification of a noncompetitive procurement. DCMC and NASA contracting officer oversight reviews should selectively test documentation supporting the written justifications for noncompetitive procurements.

Recommendations for Corrective Action

The Director, Johnson Space Center, should require the NASA contracting officer to:

1. Direct Raytheon to maintain adequate documentation in support of justifications for noncompetitive procurements, including clear and complete descriptions of the nature, scope, and results of market research.
2. Include a review of documentation supporting justifications for noncompetitive procurements in future contracting officer surveillance reviews.
3. Request DCMC to include an evaluation of documentation supporting noncompetitive procurement justifications in the next review of Raytheon's purchasing system at Houston, Texas.

Management's Response

Management concurred with the finding and recommendations. The contracting officer instructed

Raytheon to maintain adequate documentation in support of noncompetitive procurements. Additionally, the contracting officer will include a review of the supporting

documentation prior to granting subcontract consent on all purchase orders costing more than \$500,000 and will request the cognizant DCMC representative to include reviews of supporting documentation in the next purchasing system review.

Evaluation of Management's Response

The actions taken by management are responsive to the recommendations. The contracting officer has notified Raytheon that documentation reviews will be performed and is working with DCMC representatives to determine the most advantageous time to schedule a purchasing system review. We consider the actions sufficient to disposition the recommendations, which will be closed for reporting purposes.

Appendix A. Objectives, Scope, and Methodology

Objectives

The overall audit objective was to determine whether Raytheon appropriately awarded and effectively managed subcontracting activities on NASA's contract with Raytheon. Specific objectives were to determine whether:

- NASA officials incorporated required contract clauses into the prime contract and whether contractor officials, in turn, incorporated the clauses into subcontracts.
- Contractor officials appropriately obtained consents to subcontract.
- Raytheon officials ensured subcontracts were competed to the maximum extent possible.

Scope

The audit scope considered subcontract awards valued at more than \$10,000 for the period January 1996 through May 1998. During the period, Raytheon had 351 total subcontract awards valued at \$31.1 million. We selected a judgmental sample of 32 contracts valued at a total of \$8.3 million. The sample included 15 competitively awarded subcontracts totaling \$1.4 million and 17 sole-source subcontracts totaling \$6.9 million.

Methodology

For our first objective, we judgmentally selected required clauses and reviewed prime contract and subcontract documents for those clauses. For the second objective, we compared consent-to-subcontract documents with subcontract dates. For the third objective, we reviewed sample subcontract file documentation, interviewed Raytheon contractor personnel, and compared solicitation due dates with actual receipt dates.

Management Controls Reviewed

The audit tested management controls in the solicitation and award of subcontracts. We considered management controls to be adequate except for documentation to support the justification of noncompetitive procurements as discussed in the finding.

Computer-Processed Data

We obtained computer-generated data on subcontract awards and tested the data by (1) comparing data to source documents for the sampled subcontracts and (2) reconciling computer totals with other records and documents. The tests showed that the computer-processed data were sufficiently reliable to be used in meeting the audit objectives.

Audit Field Work

We conducted field work from July 1998 through August 1999 at Johnson Space Center and at Raytheon subcontractor locations in Houston, Texas. We performed the audit in accordance with generally accepted government auditing standards.

Appendix B. Management's Response

National Aeronautics and
Space Administration
Lyndon B. Johnson Space Center
2101 NASA Road 1
Houston, Texas 77058-3696



DEC 02 1999

Reply to Attn of:

BD5

TO: NASA Headquarters
Attn: W/Assistant Inspector General for Auditing

FROM: AA/Director

SUBJECT: Management Response to OIG's Draft Audit Report on Raytheon
Subcontract Management, Assignment No. A9905800

We have reviewed the subject report and appreciate the opportunity to provide comments. This response has been coordinated with the Office of Space Flight. We are pleased that your findings confirm that Raytheon officials are appropriately awarding and managing subcontract activities and that required clauses are being incorporated into the prime and subcontracts.

The findings were briefed to the contracting officer throughout the course of the audit and prior to release of a draft report, and we concur with the audit recommendations. We welcome any findings which help to improve our contract management oversight and provide overall better service. Actions have already been taken to address the audit findings and recommendations, as discussed in the enclosure. With your concurrence of these actions, we will consider the recommendations closed on issuance of the final report.

If you have any questions regarding this response, please contact Ms. Pat Ritterhouse, Audit Liaison Representative, at 281-483-4220.

A handwritten signature in cursive script that reads "George W. S. Abbey".

George W. S. Abbey

Enclosure

cc:
BH3/C. Ash
W-JSC/D. Orton
NASA HQ/HK/J. Horvath
NASA HQ/JM/J. Werner
NASA HQ/M/J. Rothenberg
NASA HQ/MX/G. Gabourel
JPL/W/L. A. Dear

Management Response to OIG's Draft Audit Report on Raytheon
Subcontract Management, Assignment No. A9905800

Auditor's Findings

"Raytheon officials appropriately awarded and effectively managed subcontracting activities on contract NAS9-18181, except for maintaining supporting justifications of noncompetitive procurements. NASA officials incorporated the required contract clauses into the prime contract, and Raytheon officials incorporated the clauses into subcontracts. Also, Raytheon officials appropriately obtained consents-to-subcontract for subcontracts valued at more than \$500,000 as required by the contract. However, our review of four noncompetitive procurements with a total value of \$399,300 showed that Raytheon officials did not maintain supporting documentation for the justifications for the noncompetitive procurements. As a result, NASA has reduced assurance that the contractor maximized the competition of its subcontracts."

Recommendations for Corrective Action

"The Director, Johnson Space Center, should require the NASA contracting officer to:

1. Direct Raytheon to maintain adequate documentation in support of justifications for noncompetitive procurements, including clear and complete descriptions of the nature, scope, and results of market research.
2. Include a review of documentation supporting justifications for noncompetitive procurements in future contracting officer surveillance reviews.
3. Request DCMC to include an evaluation of documentation supporting noncompetitive procurement justifications in the next review of Raytheon's purchasing system at Houston, Texas."

JSC Comments

We concur with the recommendations. The contracting officer has requested Raytheon to maintain adequate documentation in support of justifications for noncompetitive procurements, as shown by the attached letter. In addition, Raytheon was notified that a review of required documentation will be part of the contracting officer's review for consent to subcontract. See attached letter.

The Contracting Officer is continuing discussions with Raytheon and the Defense Contract Management Command (DCMC) to determine the most advantageous time to schedule a Contractor's Purchasing System Review (CPSR). Raytheon is continuing to work the Corporate restructure impacts, and is currently following the Hughes Legacy purchasing system with the adoption of some Raytheon initiatives. For example, the Raytheon Supply Chain Management initiative was incorporated into local practices. This accomplishes two things. First, it gives local access to Raytheon Corporate-wide agreements. It also establishes an additional review of purchases greater than \$50,000 whereby these reviews ensure (a) Corporate-wide agreements were fully utilized and (b) potential purchasing consolidations with other Raytheon entities are

Enclosure

Appendix B

maximized. It has not yet been determined when Raytheon local will totally transition to the Raytheon purchasing system. Raytheon currently has an approved purchasing system under the Hughes legacy system with authority to award subcontracts through January 24, 2000, as stated in the audit findings. It is not beneficial at this time to request a review of a purchasing system that will not continue to be followed in the future. This matter was discussed with the auditor-in-charge during the course of this audit, and he is in agreement that it is not practicable to schedule a CPSR at this time. Since we concur that documentation review should be a criteria at the next CPSR, and have so notified Raytheon in the referenced letter, we consider these actions responsive to the recommendation.

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
2101 NASA Road 1
Houston, Texas 77058-3696



Reply to Attn Of BH3-99-704

NOV 17 1999

Raytheon Technical Services Company
Attn: Hershel Graves
2224 Bay Area Boulevard
Houston, TX 77058

Subject: Training Systems Contract, NAS 9-18181, NASA Office of Inspector General (OIG) Audit Report on Raytheon

On October 28, 1999, the NASA OIG issued its draft report on Raytheon subcontract management at the Johnson Space Center. The report stated that, overall, Raytheon officials appropriately awarded and managed subcontracting activities on NASA Contract NAS9-18181. NASA officials incorporated required contract clauses into the prime contract, and Raytheon officials incorporated those required clauses into their subcontracts. Also, Raytheon officials appropriately obtained consents to subcontract for procurements valued at more than \$500,000, as required by the contract. Raytheon did not maintain supporting documentation for the four justifications for noncompetitive procurements reviewed. The NASA OIG further stated that as a result of not maintaining adequate documentation, NASA has reduced assurance that the contractor maximized the competition of its subcontracts.

To correct this reduced assurance, I am hereby requiring Raytheon to establish and maintain adequate documentation in support of all justifications for noncompetitive procurements, including clear and complete descriptions of the methodologies used in the performance of market surveys. To ensure compliance with this direction, I will review, as part of my subcontract consent, all noncompetitive subcontracts over the \$500,000 threshold for adequate supporting documentation. Subcontract files lacking adequate documentation for noncompetitive procurements will be rejected. A continual trend of rejections would indicate a potential problem within the procurement system and possibly lead to other sanctions.

Additionally, I will request that DCMC also review supporting documentation of noncompetitive procurements as an action item in their next contractor system purchasing review.

If you have any questions, you may contact the undersigned at 281-483-4151.

A handwritten signature in black ink, appearing to read "Carrie L. Ash".

Carrie L. Ash
Contracting Officer

cc:
DA30/A. Kelly
DK/J. Knight, Jr.

Attachment

Appendix C. Report Distribution

National Aeronautics and Space Administration (NASA) Headquarters

A/Administrator
AI/Associate Deputy Administrator
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M/Associate Administrator for Space Flight

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Chief Counsel, Kennedy Space Center

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Deputy Associate Director, Energy and Science Division, Office of Management and Budget
Branch Chief, Science and Space Programs Branch, Energy and Science Division, Office of Management and Budget
Associate Director, National Security and International Affairs Division, Defense Acquisitions Issues, General Accounting Office
Professional Assistant, Senate Subcommittee on Science, Technology, and Space

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Senate Subcommittee on VA, HUD, and Independent Agencies
Senate Committee on Commerce, Science, and Transportation
Senate Subcommittee on Science, Technology, and Space
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Chairman and Ranking Minority Member – Congressional Committees and Subcommittees (Cont.)

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House Subcommittee on VA, HUD, and Independent Agencies

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Congressional Member

Honorable Pete Sessions, U.S. House of Representatives

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Report Title: Audit of Raytheon Subcontract Management

Report Number: IG-00-002 Report Date: December 21, 1999

Circle the appropriate rating for the following statements.

	Strongly Agree	Agree	Neutra l	Disagre e	Strongl y Disagre e	N/A
1. The report was clear, readable, and logically organized.	5	4	3	2	1	N/A
2. The report was concise and to the point.	5	4	3	2	1	N/A
3. We effectively communicated the audit objectives, scope, and methodology.	5	4	3	2	1	N/A
4. The report contained sufficient information to support the finding(s) in a balanced and objective manner.	5	4	3	2	1	N/A

Overall, how would you rate the report?

- Excellent
- Fair
- Very Good
- Poor
- Good

If you have any additional comments or wish to elaborate on any of the above responses, please write them here. Use additional paper if necessary. _____

How did you use the report? _____

How could we improve our report? _____

How would you identify yourself? (Select one)

- **Congressional Staff**
 - NASA Employee
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 - Government: _____ Federal: _____ State: _____ Local: _____
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 - Other: _____

May we contact you about your comments?

Yes: _____ **No:** _____

Name:

Telephone: _____

Thank you for your cooperation in completing this survey.

Major Contributors to the Report

Lorne A. Dear, Program Director, Procurement Audits

Nora E. Thompson, Audit Program Manager, Procurement

Douglas Orton, Auditor-in-Charge

Melody C. Coston, Team Auditor

Nancy C. Cipolla, Report Process Manager