Audit Report

OFFICE OF THE INSPECTOR GENERAL

COST-EFFECTIVENESS OF DUAL SOURCING MAJOR COMPONENTS OF THE AEGIS WEAPON SYSTEM

Report Number 92-009

October 24, 1991

Department of Defense

The following acronyms are used in this report.

AWS.....Aegis Weapon System
CWI.....Continuous Wave Illuminator
DAB.....Defense Acquisition Board
DFARS.....Defense Federal Acquisition Regulation Supplement
FAR.....Federal Acquisition Regulation
GAO.....General Accounting Office
NAPS.....Navy Acquisition Procedures Supplement

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

October 24, 1991

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION
ASSISTANT SECRETARY OF THE NAVY (FINANCIAL MANAGEMENT)

SUBJECT: Audit Report on the Cost-Effectiveness of Dual Sourcing Major Components of the Aegis Weapon System (Report No. 92-009)

We are providing this final report for your information and use. Comments on a draft of this report were considered in preparing the final report. The audit showed that adequate price competition was not obtained for dual source acquisitions, and contracting officers did not establish the fairness and reasonableness of contract prices.

DoD Directive 7650.3 requires that all audit recommendations be resolved promptly. Therefore, the Under Secretary of Defense for Acquisition and the Director, Contract Management, Naval Sea Systems Command, must provide final comments on the unresolved issues by December 24, 1991. See the status of recommendations section at the end of the finding for the unresolved issues and the specific requirements for your comments.

As required by DoD Directive 7650.3, the comments must indicate concurrence or nonconcurrence in the finding and each recommendation addressed to you. If you concur, describe the corrective actions taken or planned, the completion dates for actions already taken, and the estimated dates for completion of planned actions. If you nonconcur, state your specific reasons for each nonconcurrence. If appropriate, you may propose alternative methods for accomplishing desired improvements. Recommendations are subject to resolution in accordance with DoD Directive 7650.3 in the event of nonconcurrence or failure to comment.

We could not quantify monetary benefits associated with the audit findings; however, implementation of our recommendations should result in lower contract prices. Although we requested comments to the draft report on whether there were monetary benefits associated with the corrective actions, none were provided. Therefore, we request that the Under Secretary of

Defense for Acquisition and the Director, Contract Management, Naval Sea Systems Command, comment on whether there were monetary benefits associated with the corrective actions and provide an estimate of the amount of any benefits. We also asked in the draft report that your comments indicate concurrence or nonconcurrence with the material internal control weaknesses highlighted in Part I. Since draft comments were not provided, please provide final comments on the internal control weaknesses.

The courtesies extended to the audit staff are appreciated. If you have any questions on this audit, please contact Mr. Russell A. Rau, Program Director, at (703) 693-0186 (DSN 223-0186) or Mr. John Donnelly, Project Manager, at (703) 693-0378 (DSN 223-0378). The planned distribution of this report is listed in Appendix G.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Enclosure

cc:
Secretary of the Navy
Director, Defense Acquisition Regulations Council

Office of the Inspector General

AUDIT REPORT NO. 92-009 October 24, 1991
(Project No. 0AE-5005)

COST-EFFECTIVENESS OF DUAL SOURCING MAJOR COMPONENTS OF THE AEGIS WEAPON SYSTEM

EXECUTIVE SUMMARY

Introduction. The Aegis Weapon System's mission is to protect U.S. task forces, primarily carrier battle groups, by destroying hostile aircraft, missiles, submarines, and ships. The Aegis Weapon System is used on the DDG-51 Arleigh Burke class destroyer and the CG-47 Ticonderoga class cruiser. During FY's 1992 through 1999, the Navy plans to buy 32 Aegis Weapon Systems at an estimated cost of $5.1 billion.

Objectives. Our objectives were to evaluate the cost-effectiveness of dual sourcing major components of the Aegis Weapon System and the applicable internal controls.

Audit Results. The audit disclosed the following conditions.

o Contracting officers relied on incomplete price analyses when negotiations and cost analyses were needed to obtain fair and reasonable contract prices. Contracting officers did not negotiate proposed prices with dual source contractors. Dual source contract prices for the Aegis Weapon System may have been about $14.5 million lower if contracting officers used cost analysis techniques.

o The decision to dual source major components of the Aegis Weapon System was not cost-effective. We issued a draft Quick-Reaction Report recommending cancellation of the Fire Control System's dual source program. The Navy provided acceptable alternative corrective actions, which we included in the final report.

Internal Controls. Internal controls were not sufficient to protect Government interests in obtaining fair and reasonable contract prices for dual source procurements. See the Internal Controls section in Part I for details of our review.

Potential Benefits of Audit. This report identifies no potential monetary benefits (Appendix E). However, implementation of our recommendations on when to obtain certified cost or pricing data and perform cost analyses in support of further contract negotiations to obtain fair and reasonable prices should result in monetary benefits. Therefore, we requested comments on the potential monetary benefits associated with our recommendations.

Summary of Recommendations. We recommended revisions to the Defense Federal Acquisition Regulation Supplement. We also recommended that the Navy use complete price analyses and cost analyses, as needed, for dual source acquisitions of Aegis Weapon System components. In addition, we added a new Recommendation 3. in the final report to report and track the material internal control weakness identified by the audit.

Management Comments. The Director, Defense Procurement, partially concurred with Recommendations 1.a. and 1.b. The Director agreed that additional guidance was needed but did not agree with the specific guidance included in the draft recommendations. Therefore, the Director proposed alternative regulatory actions. The Navy nonconcurred with Recommendation 2. The Navy said that a complete price analysis would require not only a comparison with prior prices as recommended in the draft report, but also a comparison between proposed dual source prices. Comments are further discussed in Part II, and the complete texts of the Director, Defense Procurement, and Navy comments are in Part IV of this report.

Audit Response. We agreed that the alternative action to Recommendation 1.a. will provide improved guidance, but we also concluded that the action will not prevent a recurrence of the reported condition. We revised Recommendation 1.a. based upon the Director's comments. We accepted the Director's alternative action to Recommendation 2.b. and revised the recommendation in the final report accordingly. Therefore, we requested that the Director provide final comments on the report by December 24, 1991.

We agreed with the Navy's comment on Recommendation 2. and revised the recommendation to be consistent with both the Navy's comment and revised Recommendation 1.a. We requested final comments from the Navy by December 24, 1991.

We also requested that the Under Secretary of Defense for Acquisition provide comments on new Recommendation 3. by December 24, 1991.

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This report was prepared by the Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD. Copies of the report can be obtained from the Information Officer, Audit Planning and Technical Support Directorate, (703) 693-0340.

PART I - INTRODUCTION

Background

The Government dual sources a weapon system to introduce competition into otherwise sole source procurement programs and to maintain or enhance the industrial base. Dual source contracts can be competitively awarded based on the most cost-effective combination of prices received. The Government's justification for dual sourcing is that lower long term contract prices offset initial investment costs and potentially higher initial production costs.

Aegis Weapon System mission and functions. The Aegis' mission is to destroy enemy aircraft, missiles, submarines, and ships to prohibit the use of such forces to attack and destroy U.S. task forces, primarily carrier battle groups. The Aegis Weapon System (AWS) is part of the Aegis Combat System. The AWS consists of the Radar System, the Command and Decision System, the Fire Control System, and the Weapon Control System. The Navy established dual source programs for the Radar System and the Fire Control System.

The AWS is the automated segment of the Aegis Combat System. The Aegis Combat System consists of two vertical launchers accommodating 90 missiles to suit specific missions. The 90 missiles can be any combination of TOMAHAWK cruise missiles, Standard Missile 2 surface-to-air missiles, and antisubmarine rockets. The Aegis Combat System also carries the HARPOON antiship missile, rapid fire gun, the guided projectiles, the PHALANX close-in weapon system, and AWS torpedoes. The Aegis Combat System is capable of simultaneous operation in antiair, surface, antisubmarine, and amphibious warfare.

The antiair mission of the AWS is accomplished through its various components. The Radar System searches, detects, and tracks air and surface targets in heavy clutter while providing an electronic countermeasure environment. The Fire Control System provides launch control to the Standard Missile and consists of two major subcomponents: the Continuous Wave Illuminator (CWI) Transmitter, which provides energy for missile homing and is controlled by the illuminator channel control program resident in the console, and the Director/Director Controller, which illuminates targets.

Procurement history of the Aegis Weapon System. After investing approximately $124.6 million through March 1, 1990, to qualify Unisys and Westinghouse as second sources, the Navy canceled the Radar System dual source program in April 1990 before awarding any dual source production contracts for the Radar System. The cost to qualify and produce the Fire Control System will total about $50.3 million, including about $20 million in Navy costs to continue additional support through FY 1997.

The Navy procured 97 CWI Transmitters from a single source from FY 1978 through FY 1987.[1/] For FY's 1988 through 1990, the Navy procured 50 CWI Transmitters from Raytheon Company Equipment Division, Wayland, Massachusetts, and Unisys Corporation Shipboard and Group Systems Group, Great Neck, New York, on a dual source basis. The Navy procured 81 Director/Director Controllers from General Electric Ordnance Systems Division, Pittsfield, Massachusetts, from FY 1978 through FY 1986. For FY's 1987 through 1990, the Navy procured 76 Director/Director Controllers from General Electric Ordnance Systems Division, and the second source, Unisys (Sperry) Corp.

Objectives

The audit objectives were to determine the cost-effectiveness of dual sourcing major components of the AWS and to examine applicable internal controls. Specifically, we assessed:

o the adequacy of cost-benefit analyses justifying competitive dual source acquisition strategies for AWS components,

o the fairness and reasonableness of contract prices on dual sourced AWS components, and

o the effectiveness of internal controls applicable to dual source acquisition strategies.

Scope

Records reviewed. We reviewed Naval Sea Systems Command records related to the management, planning, and funding of dual source components of the AWS for FY 1984 through December 1990. We researched the chronology of events that led to the AWS second source decisions. We analyzed five cost-effectiveness studies performed from March 1987 to March 1990 on the AWS and reviewed acquisition plans for the AWS dual source strategy. Also, we reviewed all dual source qualifications and 14 production contracts awarded from FY's 1985 through 1990. We obtained assistance from the Technical Assessment Division, Audit Planning and Technical Support Directorate, in evaluating the cost-effectiveness of dual source acquisitions. As part of our determination of Government receipt of fair and reasonable prices, we compared dual source prices with prior sole source prices. We used a learning curve analysis as an additional tool

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1/ The Navy bought 40 CWI Transmitters from RCA Electronic System Department, prime contractor for the AWS, from FY 1978 through FY 1983. In FY's 1984 through 1987, the Navy bought 57 Transmitters directly from the original equipment manufacturer, Raytheon Company Equipment Division, Wayland, Massachusetts.

in determining the reasonableness of contract prices proposed by previous sole source contractors.

Audit period, locations, and standards. This economy and efficiency audit was made from June 1990 to January 1991. The audit was performed in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and accordingly included such tests of internal controls as were considered necessary. The activities visited or contacted during the audit are shown in Appendix F.

Internal Controls

Controls assessed. We evaluated internal controls established for conducting cost-benefit analyses of dual sourcing components of the AWS and ensuring contract prices were fair and reasonable.

Internal control weaknesses identified. The audit identified material internal control weaknesses, as defined by Public Law 97-255, Office of Management and Budget Circular A-123, and DoD Directive 5010.38. Controls were not sufficient to ensure dual source acquisition strategies were cost-effective. Specific internal control weaknesses are discussed in the Finding. Recommendations in this report, if implemented, will ensure that negotiated prices for dual source contracts are fair and reasonable. We could not determine the monetary benefits to be realized by implementing the recommendations (Appendix E). The monetary benefits were not readily determinable because of uncertainty as to the number and amount of noncompetitive dual source contracts. A copy of this report is being provided to the senior officials responsible for internal controls within the Offices of the Secretary of Defense and the Navy.

Prior Audits and Other Reviews

Previous audits by the General Accounting Office (GAO) and the Inspector General, DoD, found that adequate price competition often did not exist on dual source procurements. Our audit found the same condition. The specific conditions found during prior audits, as well as the condition we found, are summarized in Part II of this report (page 7). The Inspector General, DoD, also found during its previous audits that the methods used by the Military Departments to perform cost-benefit analyses of dual source procurements did not consider all pertinent costs and overstated potential savings to the Government. We also found the same condition during this audit, but corrective actions were taken during the audit (Other Matters of Interest).

Other Matters of Interest

This audit found that dual sourcing major components of the AWS was not cost-effective. The Navy decided to dual source before it performed adequate cost-effectiveness studies. Because of the lack of guidance on when and how to conduct cost-effectiveness studies, we concluded that dual source costs exceeded benefits by about $163 million. We did not address the cost-effectiveness of dual sourcing the AWS in this report because the Navy took the following corrective actions during the audit.

Cost-effectiveness study. As a result of a March 1990 cost-effectiveness study, the Navy canceled the AN/SPY Radar dual source program in April 1990. The Navy reevaluated its Radar dual source decision because of more favorable sole source pricing trends and the declining Defense budget.

Quick-reaction report. As part of this audit, we issued Quick-Reaction Report No. 91-057, "Review of the Cost-Effectiveness of Dual Sourcing Major Components of the Aegis Weapon System," on February 27, 1991. The report recommended that the Navy cancel the Fire Control System dual source program. The Navy proposed acceptable alternate actions, which could result in cancellation of the Fire Control System dual source program in FY 1992 for one Fire Control System component and either FY 1991 or FY 1993 for the other Fire Control System component. The Navy estimated that canceling the dual source program for the Fire Control System will reduce acquisition costs by about $23.3 million.

Additional guidance. In June 1990, the Under Secretary of Defense for Acquisition directed the Secretaries of the Military Departments not to develop or maintain a second source unless the projected savings from competition exceeded the costs of qualifying a second source and of splitting production quantities between two sources. This guidance provided that major acquisition programs would be reviewed for the cost-effectiveness of dual sourcing at Defense Acquisition Board (DAB) milestone and program reviews. In July 1990, The Assistant Secretary of the Navy (Research, Development and Acquisition) expanded upon this guidance by directing that the policy also be applied to all less-than-major Defense programs. The Assistant Secretary also issued implementing instructions, including a standard format for the detailed cost analysis portion of dual source validation reviews. Finally, the Assistant Secretary designated the Naval officials or offices responsible for preparing, reviewing, evaluating, and presenting the dual source material. The results of these reviews will be an important part of the Navy program decision meetings and the DAB reviews. This additional guidance was quite positive in that it provided for more frequent review of the cost-effectiveness of dual sourcing than DAB milestone and program reviews, and it expanded coverage to nonmajor programs.

PART II - FINDING AND RECOMMENDATIONS

ADEQUACY OF PRICE AND COST ANALYSES

Dual source acquisition of the AWS generally did not result in adequate price competition, and price analyses by contracting officers did not adequately establish the fairness and reasonableness of proposed prices. In the absence of adequate price competition, contracting officers should have bargained with offerors and, if necessary, requested and used certified cost or pricing data to perform cost analyses supporting further negotiations. This condition occurred because Defense procurement regulations permitted contracting officers to accept dual source proposed prices without adequately analyzing or negotiating the prices and did not specify criteria for performing price and cost analyses. In addition, Navy procurement regulations discouraged contracting officers from obtaining certified cost or pricing data or performing cost analyses on dual source acquisitions. Dual source contract prices could have been $14.5 million lower if contracting officers obtained and evaluated certified cost or pricing data and used the data to negotiate fair and reasonable prices.

DISCUSSION OF DETAILS

Background

Adequate price competition. A contracting officers' determination regarding the fairness and reasonableness of contractor proposed prices may be based on conclusions that adequate price competition exists or that proposed prices are based on adequate price competition. Federal Acquisition Regulation (FAR), subpart 15.804-3(b), states that adequate price competition exists if offers are solicited, two or more offerors submit offers that satisfy the solicitation's requirements, and the offerors compete for a contract. FAR, subpart 15.804-3(b), further states that ". . . a price is 'based on' adequate price competition if it results directly from price competition or if price analysis alone clearly demonstrates that the proposed price is reasonable in comparison with current or recent prices for the same items purchased. . . ."

Price and cost analyses. The FAR and DFARS require that contracting officers use and document price and cost analyses on competitive acquisitions, including dual source contracts, to determine the price's reasonableness and the proposal's responsiveness. When adequate price competition exists on negotiated contracts or when proposed prices are "based on" adequate price competition, a price analysis alone may establish fairness and reasonableness of contract prices. A price analysis is the process of evaluating a proposed price without evaluating the cost elements that make up that price.

A cost analysis is the review and evaluation of the separate cost elements and proposed profit of an offeror's cost or pricing data. A cost analysis must supplement the price analysis in all other instances unless the price is based on a catalog or market price of commercial items sold in substantial quantities to the general public or the price is set by law or regulation. A cost analysis may supplement a price analysis even when contracting officers determine that adequate price competition exists. Cost or pricing data are all facts as of the date of price agreement that prudent buyers and sellers would reasonably expect to affect price negotiations.

A dual source acquisition strategy often does not result in adequate price competition. This occurs for two reasons. First, the original equipment manufacturer may not perceive the second source as a threat and therefore may not competitively price its proposal. Both contractors may consider a competitive price for the low quantity unnecessary because the source that loses the high quantity award will normally be awarded the low quantity portion of the buy. In fact, the price that the Government pays for the lower quantity share is invariably higher than the price proposed by the source awarded the high quantity share. With respect to low quantity portions of the buy, the Defense Systems Management College publication, "Establishing Competitive Production Sources, A Handbook For Program Managers," states that dual source competitions:

> . . . present a contractor with the opportunity to submit artificially high bids for the small production quantity portion of the buy, thereby obtaining excessive profit levels. The program manager can counter this problem by developing a source selection plan that presents the competitors with the potential for a zero award. Furthermore, detailed audits and negotiation could be used to ensure reasonable pricing of the lower quantity share.

We agree with the Defense Systems Management College's assessment on dual sourcing. Cost analyses supported by field pricing or certified cost and pricing data should be performed on low quantity awards when a price analysis shows that proposed prices are not reasonable in comparison with recent contract prices.

In summary, under the dual source procurement method, the Government should carefully assess proposed prices to determine whether the prices are fair and reasonable or whether further negotiation or a detailed cost analysis is needed on either of the offeror's proposals. Presumption of adequate price competition should not be the basis for determining price reasonableness in a dual source environment because dual source competition does not necessarily constitute adequate price

competition at all proposed quantity levels or justify the waiver of certified cost or pricing data.

Previous audits of dual sourcing. Recent audits disclosed that dual source acquisitions did not usually result in competitive prices. Office of the Inspector General, DoD, Report No. 88-163, "Dual-Source Procurement Techniques," June 1988, and GAO Report No. GAO/NSIAD-89-181 (OSD Case No. 8153), "Contract Pricing, Dual-Source Contract Prices," September 1989, found that split award techniques often did not result in adequate price competition.

Inspector General report. The Inspector General's report found that contracting officers had classified 30 of the 38 dual source contracts reviewed as adequately competed. However, the audit disclosed that adequate price competition did not exist. This occurred because either contracting officers did not award contracts at the lowest evaluated price or the second source was unwilling or unable to submit offers at all ranges of the solicitation. The value of the 30 contracts was $8.8 billion, and the contracts applied to each of the Military Departments. The report recommended that the Assistant Secretary of Defense (Production and Logistics) issue a dual source policy statement; instruct the Services to obtain certified cost or pricing data on all dual source procurements; and expand the Defense Federal Acquisition Regulation Supplement (DFARS), part 17, to clarify the policy and guidance to be used when soliciting and awarding contracts for dual source acquisitions.

The Assistant Secretary of Defense (Production and Logistics) took corrective actions to issue policy and revise the DFARS, but determined that submission of certified cost and pricing data with initial dual source proposals should not be mandatory. However, follow-up inquiries by the DoD Inspector General on 15 Navy dual source procurements showed that dual source proposed prices were still automatically considered price competition without further negotiation or cost analysis.

GAO report. The GAO report found that on four of eight dual source contracts reviewed, contracting officers accepted the prices proposed by contractors as fair and reasonable because they believed that adequate price competition existed. However, of the four contracts, GAO found that contracting officers would have had a sound basis for seeking price reductions of about $29 million for three contracts had they performed a cost analysis in addition to the price analysis. The three contracts were awarded for about $390 million.

Conversely, on the other four contracts reviewed, GAO found that contracting officers achieved reductions in the contractors' proposals totaling over $30 million by using cost analysis techniques rather than relying solely on price analysis techniques. The four contracts were awarded for about $330 million.

GAO recommended that the Secretary of Defense revise the DFARS to provide contracting officers guidance for determining when adequate price competition exists in dual source contracts. GAO further said that the guidance should address the need for contracting officers to obtain a thorough understanding of contractors' proposed prices before making adequate price competition determinations. DoD concurred with the need for contracting officers to obtain a thorough understanding of contractors' proposed prices before making adequate price determinations and revised the DFARS on November 16, 1990.

The DoD Inspector General did not believe that the DFARS revision corrected the conditions previously found. In response to the GAO report, the Inspector General stated:

> In fact, we feel that the GAO recommendation did not go far enough. The mere addition of wording calling for deliberation and thorough review (by contracting officers in determining if adequate price competition exists) is unlikely to halt what we see as a tendency -- especially in the Navy -- toward unjustifiable waivers of certified cost or pricing data. Unfortunately, the DFAR revision issued in response to the General Accounting Office report did not go far enough to change the adverse condition because the guidance still does not explain what constitutes adequate price analysis, and still does not encourage contracting officers to obtain certified cost or pricing data.

As discussed below, this audit disclosed the same conditions as previous audits of dual sourcing.

Competitiveness of Fire Control System Dual Source Contract Prices

Proposed dual source prices for the Fire Control System were not competitive either with recent contract prices or with each other. Contracting officers selected the lowest combined proposed split award prices and awarded contracts at those prices even though the prices did not exhibit adequate price competition. Contracting officers relied on incomplete price analyses to determine whether prices were fair and reasonable. Specifically, contracting officers did not compare proposed prices to current contract prices. Contracting officers did not negotiate the proposed prices with the dual source contractors because price analyses did not disclose the noncompetitiveness of proposed prices. Dual source pricing trends confirmed that low quantity split award prices substantially exceeded recent sole

source prices. A cost analysis should have been performed to adequately evaluate the fairness and reasonableness of these proposed prices in support of the negotiation process.

Competitiveness with prior prices. We found that 8 of the 14 AWS dual source contract prices for FY's 1987 through 1990 were not competitive because proposed unit prices were significantly higher than recent contract unit prices. In six of these eight cases, there were significant quantity differences between the lowest recent unit price and the proposed unit price. Quantity differences generally directly impact unit prices by making a higher price fair and reasonable. However, the determination of what price was fair and reasonable was not based on a cost analysis. Rather, these higher unit prices were accepted as fair and reasonable based on an incomplete price analysis, which concluded that adequate price competition existed. Prices that are about 66 percent higher than the lowest recent contract price should be subject to a detailed cost analysis to assess their fairness and reasonableness and to enhance the effectiveness of contract negotiations.

Appendix A shows the 14 dual source contract prices, and the schedule below shows the differences between the lowest recent prices and the noncompetitive contract prices. The schedule shows that six low quantity unit prices exceeded the lowest recent contract unit prices, and that two high quantity prices exceeded the lowest recent contract unit prices, although at a lesser rate than the low quantity prices.

COMPARISON OF CONTRACT UNIT PRICE AND LOWEST PRIOR PRICE
(Dollars in Thousands, FY 1990 Dollars)

CWI Transmitter

Fiscal Year	Lowest Recent Price	Contract Unit Price	Difference	Percentage of Increase
1989	$1,085	$1,809 1/	$ 724	67
1990	$1,085	$1,746 1/	$ 661	61

Director/Director Controller

Fiscal Year	Lowest Recent Price	Contract Unit Price	Difference	Percentage of Increase
1987	$1,530	$2,149 1/	$ 619	40
1988	$1,149	$1,808 1/	$ 659	57
1989	$1,108	$2,124 1/	$1,016	92
1989	$1,108	$1,207 2/	$ 99	9
1990	$1,108	$1,972 1/	$ 864	78
1990	$1,108	$1,255 2/	$ 147	13

1/ Contract unit price for low quantity offer. Increases averaged 66 percent.

2/ Contract unit price for high quantity offer. Increases averaged 11 percent.

Comparison between proposed prices. The audit also disclosed a lack of competitiveness between the competing sources for the six low quantity awards shown in the previous schedule. Despite the lack of competitiveness, the contracting officer awarded five of the six contracts to the higher priced offeror at the proposed price without negotiating the proposed price with the offeror. Appendix B, which depicts the lack of competitiveness, shows that the second source low quantity prices were not competitive with the prime source for six of the seven low quantity awards.

Second source low quantity prices for the CWI Transmitter were about 29 percent higher than the prime source prices in FY's 1989 and 1990. For the Director/Director Controller, second source low quantity prices were about 20 percent higher than the prime source prices in FY's 1987 and 1988. The difference in prices declined to 7 percent in FY 1989, but the decline was due primarily to an increase in prime source prices over FY 1988. In FY 1990, the low quantity second source price was about 40 percent higher than the prime source proposed price.

On the remaining contract, the contracting officer negotiated a reduction in the second source contractor's proposed price

because of the contractor's initial lack of competitiveness with the prime source's proposed price. After the negotiations, the second and prime source prices were almost identical.

Lower contract prices. Conversely, contracting officer price analyses established fair and reasonable prices for the remaining six contracts reviewed. Contract prices for five dual source proposals were competitive with the lowest recent contract prices. The five lower contract prices included the three high quantity CWI Transmitter acquisitions and the FY 1987 and FY 1988 high quantity Director/Director Controller acquisitions. Contractors proposed lower prices for the five contracts, and contracting officers performed price analyses on the five proposed prices by comparing them with previous prices.

In the FY 1988 CWI Transmitter acquisition, the contracting official negotiated a reduction in the proposed price. The contracting official concluded that the second source proposed price was too high compared to the prime source proposed price for the low quantity. Therefore, the official negotiated a price reduction from the proposed unit price of about $1.9 million to the award unit price of about $1.5 million.

Contracting officers' proposal evaluations. Contracting officers used incomplete price analyses for 8 of the 14 contracts reviewed. Contracting officers did not negotiate or use cost analyses for the eight proposals even though the proposed prices were not competitive with prior contract prices.

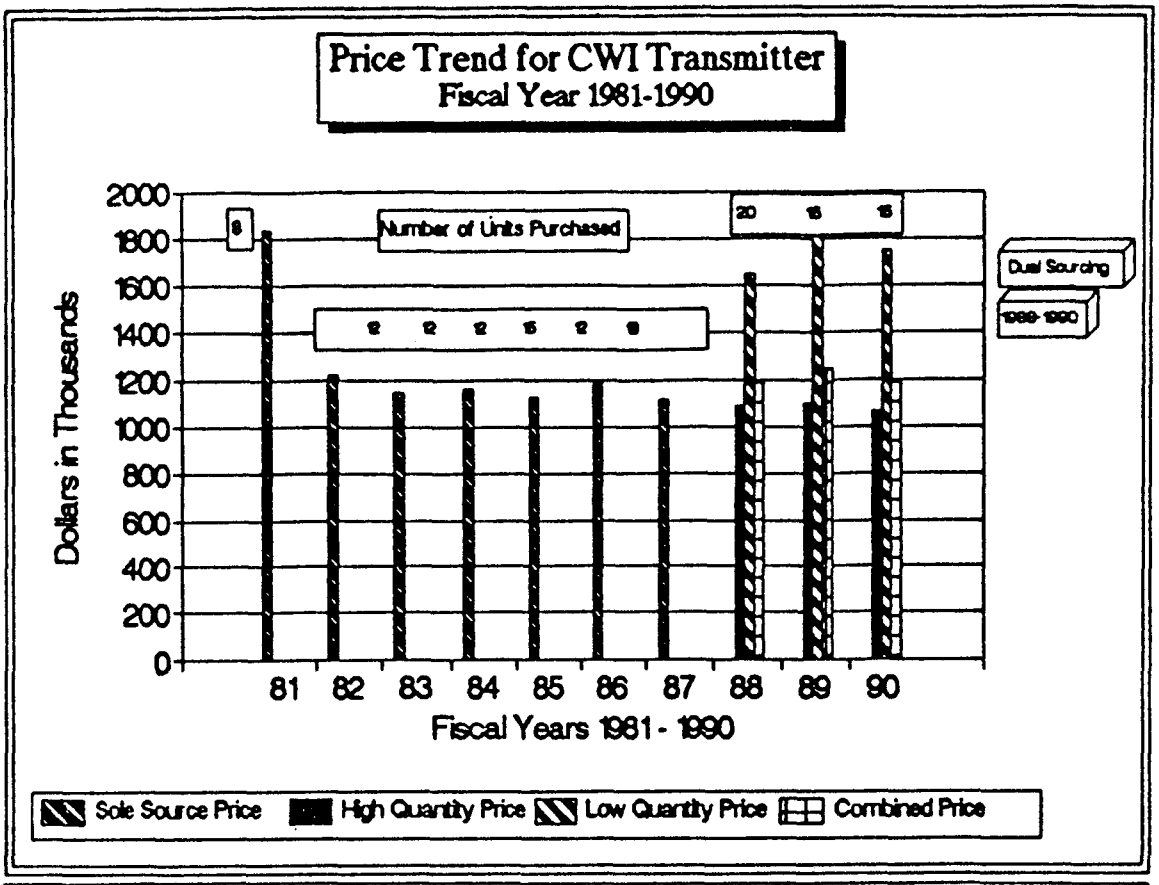
Incomplete price analyses--low quantity proposals. Contracting officers concluded that proposed prices for six low quantity awards were fair and reasonable. They based this conclusion on comparisons of proposed prices with sole source contract prices at similar quantities and points in production, which was usually about 8 years earlier than the date of the proposed price. The six low quantity awards were for acquisition of the CWI Transmitter in FY's 1989 and 1990 and acquisition of the Director/Director Controller in FY's 1987 through 1990. Comparison of low quantity awards with sole source prices at similar quantities and points in production, while beneficial, was not sufficient to justify a determination that adequate price competition existed. In fact, these prices were not competitively established because in five of the six low quantity awards, the alternate sources proposed lower prices for the same quantity. The following excerpt from Business Clearance Memorandum Number 51,215.3, June 29, 1989, for the FY 1989 low quantity acquisition of the Director/Director Controller typified contracting officer analyses for low quantity contracts.

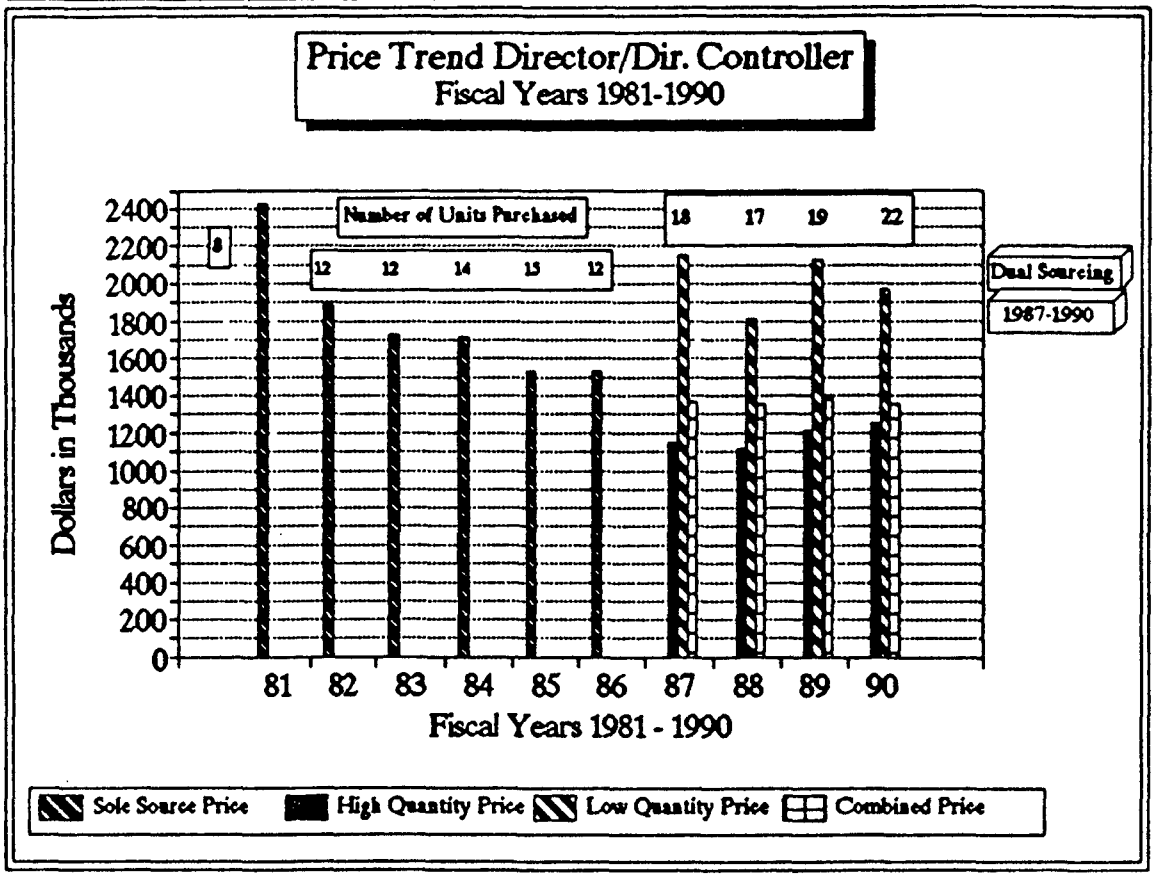
> Further, since it is not reasonable to expect Unisys to match General Electric's eleventh-buy unit costs on their own third production year, the only reasonable comparison in a young second-source environment is between GE's historical prices for early production units and Unisys' current proposed prices in constant year dollars. When adjusted for inflation, Unisys' proposed prices compare favorably with GE's prices at the same point on the learning curve.

The same point on the learning curve for General Electric was FY 1980, the third production year. A complete price analysis would have disclosed the lack of prior price history with the second source and the noncompetitiveness of the second source's prices with the prime source's. The Navy, therefore, should have negotiated contract prices, and if fair and reasonable prices were still not obtained compared to the original source, obtained certified cost or pricing data and performed a cost analysis in support of further negotiations to ensure fair and reasonable prices were obtained. We consider the Navy's explanation in the Business Clearance Memorandum insufficient justification for not negotiating with the contractors to obtain potentially lower prices. The Navy should have performed a cost analysis if negotiations were not successful.

Incomplete price analyses--high quantity proposals. Contracting officers accepted proposed prices for the Director/ Director Controller on two high quantity contracts as fair and reasonable because the proposed prices represented the lowest split award prices. Further price analyses were not performed to evaluate the proposed prices. We compared the proposed FY 1989 and FY 1990 prices with the FY 1988 contract prices and concluded that further price analyses and potential cost analyses and negotiations were required. Specifically, we found that the proposed prices for both contracts were higher than the FY 1988 contract prices after adjustment for inflation and the most recent comparable contract price (Appendix A).

Pricing trends. The Navy's overall unit price for the CWI Transmitter has increased under dual sourcing, while the overall unit price for the Director/Director Controller has decreased; however, investment costs will not be recovered. The following bar charts depict pricing trends under sole sourcing and dual sourcing.


Price Trend for CWI Transmitter
Fiscal Year 1981-1990
Dollars in Thousands
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Number of Units Purchased
8
12 12 12 15 12 8
20 15 15
Dual Sourcing
1988-1990
81 82 83 84 85 86 87 88 89 90
Fiscal Years 1981 - 1990
Sole Source Price
High Quantity Price
Low Quantity Price
Combined Price


Price Trend Director/Dir. Controller
Fiscal Years 1981-1990
Dollars in Thousands
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Number of Units Purchased
8
12 12 14 15 12
18 17 19 22
Dual Sourcing
1987-1990
81 82 83 84 85 86 87 88 89 90
Fiscal Years 1981 - 1990
Sole Source Price
High Quantity Price
Low Quantity Price
Combined Price

With respect to the CWI Transmitter, the high quantity prices were the same or even lower than recent sole source prices, and low quantity prices exceeded sole source prices, which covered a slight increase in the combined price. With respect to the Director/Director Controller, the high quantity prices increased in FY's 1989 and 1990 but were still lower than FY 1991 sole source prices, low quantity prices were higher than sole source prices, and combined prices were lower than sole source prices.

Winner take all prices. Contracting officers solicited and obtained winner take all prices for dual source acquisitions but did not award any of the annual fiscal year requirements to one source even though the winner take all prices were lower than the split award prices. The Navy could have reduced acquisition costs by $27.3 million by accepting the lowest proposed price instead of splitting the award (Appendix C). The lowest proposed prices were achieved in a competitive winner take all market wherein the entire requirement could be awarded to the source proposing the lower price. While Navy solicitations included requirements for winner take all prices, the Navy did not award any contracts at those prices because the stated intent of the acquisitions was to split requirements between the two sources. This situation directly affects the adequate price competition determination because the indication in the DFARS is that both sources should consider the potential for a 100-percent award in their pricing strategy. This competitive influence on the full range of proposed quantity prices is potentially limited if the likelihood of a 100-percent award is remote.

Contract pricing incentives. Contractors are often not induced to fairly price either the lower or higher quantity dual source shares. Low quantity awards are particularly vulnerable to overpricing in a dual sourcing environment. In this environment, contractors are not enticed to submit competitive prices for low quantity awards because the awards are virtually guaranteed. Specifically, contractors realize that the source that is least competitive at higher quantity ranges will be awarded a contract for the lower quantity. "Establishing Competitive Production Sources, A Handbook For Program Managers," states that dual source competitions may result in excessive prices for low quantity production buys, and that detailed audits and negotiation may be needed to ensure reasonable pricing.

We agree with the Handbook's assessment on dual sourcing and would go one step further by requiring a cost analysis of low quantity proposals when a price analysis shows that proposed prices are not competitive with the lowest previous contract price.

Dual sourcing also permits artificially high bids for the high production quantity portion of the buy from original sole source suppliers. This opportunity for excessive profits exists when the original sole source supplier perceives that the second source cannot effectively compete for the award. The Assistant

Secretary of the Navy (Shipbuilding and Logistics) noted this condition in assessing the cost-effectiveness of dual sourcing one of the two major subcomponents of the Fire Control System. In a December 31, 1989, memorandum to the Secretary of the Navy, the Assistant Secretary stated:

> . . . in the case of the CWI (Continuous Wave Illuminator Transmitter), it appears that Raytheon may have gamed the initial phases of second source competition by estimating the government's willingness to pay a premium to maintain the second source. So far, this has resulted in average unit costs in excess of their pre-competition costs. Until the incumbent evaluates the second source as a credible contender, a competitive effect on pricing may lag the onset of competition.

Reasons for contracting methods. Contracting officers did not perform cost analyses on noncompetitive dual source proposals for two reasons. First, Defense procurement regulations permitted contracting officers to accept the lowest proposed split award price combinations without further analysis, defining this as adequate price competition. We disagree that the lowest proposed split award price represents fair and reasonable prices for both high and low quantities. Split award prices are often higher than prior sole source prices because contractors may not react to the threat of competition and because of the lack of incentive to submit competitive prices for low quantity awards. Low quantity unit prices were higher than winner take all or recent sole source unit prices. Contracting officers used inconclusive price analyses to justify the higher unit prices and accepted the price without negotiation or cost analysis. Second, Navy procurement regulations stated that certified cost or pricing data are not normally needed for dual source acquisitions. Contracting officers were therefore predisposed not to use cost analyses on noncompetitive dual source proposals.

Regulations

Federal acquisition regulations do not cover dual source contracting. Defense acquisition regulations permit contracting officers to accept dual source proposals and award contracts without adequately analyzing and negotiating proposed prices. Comparisons with recent contract prices are not mandatory. Also, there are no criteria for when cost analyses should be performed.

Defense acquisition regulations. The DFARS permits a comparison of proposed prices and selection of the lowest split award price combination, which automatically constitutes adequate price competition, without further price or cost analysis or negotiation with the contractors. Therefore, contracting

officers may accept split award proposed prices without performing a price or cost analysis even though the prices may not be competitive with previous contract prices or with each other.

DFARS, 215.804-3 (b) (S-70), states:

> (i) In the case of dual source programs, the determination of adequate price competition must be made on a case-by-case basis and contracting officers must exercise deliberation and thorough review in making such determination. Even in those cases where adequate price competition exists, it may still be appropriate, in certain cases, to obtain some data in support of the price analysis performed.
>
> (ii) Adequate price competition normally exists when prices are solicited across a full range of step quantities, normally including a 0-100 percent split, from at least two offerors who are individually capable of producing the full quantity, and
>
> (A) the award is made to the offeror with the lowest evaluated price;
>
> (B) when the award is split, if the combined price of both awards is the lowest evaluated price in the range of offers submitted; or
>
> (C) when the combined price of both awards is not the lowest evaluated price in the range of offers submitted, the price reasonableness of all prices awarded is clearly established on the basis of price analysis.

DFARS, section 215.804-3 ii(b)(2), permits contracting officers to evaluate dual source proposals for price competitiveness and subsequently obtain cost or pricing data if the evaluation indicates that adequate price competition does not exist.

This audit, as well as prior audits, found that contracting officers did not adequately analyze proposed dual source prices. Therefore, we believe the current DFARS language needs to be revised to ensure that price analyses are used to determine whether adequate price competition exists. Additionally, a cost analysis based on certified cost and pricing data should be used if the price analysis discloses that proposed prices are not

competitive and negotiation without benefit of the results of a cost analysis fails to achieve fair and reasonable prices. A cost analysis should be performed when:

o a price analysis discloses that dual source contractor proposed prices are not competitive with either recent contract prices or with each other, and negotiations do not achieve fair and reasonable prices, or

o a price analysis is not an appropriate technique because previous contract prices were not based on adequate price competition or subjected to cost analysis.

Navy acquisition regulations. Navy acquisition regulations discouraged contracting officers from obtaining certified cost and pricing data for dual source acquisitions by stating that adequate price competition normally exists for dual source acquisitions. The Navy Acquisition Procedures Supplement (NAPS), part 15.804, states that certified cost or pricing data should not normally be obtained for dual source acquisitions. NAPS, part 15.804, states:

> Thus, in competitive acquisitions where adequate price competition is contemplated, the contracting officer shall not require the submission of cost or pricing data whether certified or not, as defined in FAR 15.801, regardless of the type of contract.
>
> . . . examples of contract awards for which prices may be based on adequate price competition and/or to have been established by adequate price competition are:
>
> . . . . . .
>
> . . . (iii) contracts for which there are dual sources.

We agree that certified cost or pricing data should not be obtained with the initial price proposal; however, the Navy should reserve the right in the solicitation to request certified data if adequate price competition does not occur. This is, in fact, what the Navy does include in its solicitations, although the data have not been requested for any of the contracts we reviewed.

The Navy also issued guidance that restricts the use of cost analyses on dual source acquisitions. In April 1988, the Office of the Assistant Secretary of the Navy (Shipbuilding and

Logistics)[2/] issued a memorandum to Navy commands indicating that cost or pricing data are not normally needed for competitive acquisitions where adequate price competition is contemplated, such as dual source contracts. Such an interpretation is counterproductive because the contemplation of competition is insufficient to protect the Government's interests. Specifically, contracting officers should first carefully analyze proposed prices to determine whether adequate price competition did in fact occur.

Effects of Not Using Cost Analyses

We determined that noncompetitive dual source contract prices for the Fire Control System would have been $14.5 million lower than the award prices if the Navy had used cost analyses to evaluate the reasonableness of noncompetitive proposal submissions and sustained appropriate price reduction through the negotiation process (Appendix D). We computed the potential lower contract prices by determining the rate of negotiated price reductions for recent sole source acquisitions of the Fire Control System. We then applied that rate to noncompetitive dual source prices for which contracting officers did not establish the reasonableness of contract prices. Although there is no precise method of determining negotiated savings that may have occurred, we believe that use of historical decrement factors provides a reasonable estimate of reduced contract prices.

Opportunities to Reduce Costs

The Navy can reduce the cost of acquiring the Fire Control System by using price and cost analyses to establish the reasonableness of dual source contract prices. There is no precise method for determining the cost reductions that might be achieved through price and cost analyses on future Fire Control System acquisitions. Indeed, cost analyses will not be needed if the dual source contractors submit competitively priced proposals or if contracting officers can negotiate competitive prices. However, experience suggests the need for negotiation based on cost analyses for future acquisitions. Use of cost analyses on noncompetitive sole source acquisitions of the AWS resulted in an average savings of 13.3 percent over contractor proposed prices. In addition, the potential for postaward protection from defective pricing provides an additional internal control over submission of accurate, current, and complete cost or pricing data before negotiations.

2/ The Office of the Assistant Secretary of the Navy (Shipbuilding and Logistics) has been reorganized and is now part of the Office of the Assistant Secretary of the Navy (Research, Development and Acquisition).

Conclusion

DoD needs to revise the DFARS to improve internal controls in dual source acquisitions, particularly for low quantities in split awards. Previous GAO and Inspector General audits, as well as this audit, have documented both the absence of competitive prices and the need to obtain fair and reasonable prices. DoD can achieve lower dual source contract prices by requiring certified cost or pricing data and performing cost analyses when price analyses, including negotiations with contractors as needed, indicate that proposed prices are not competitive with either recent contract unit prices or with each other. The recommended regulatory change would not overburden the system because contracting officers would not be required to perform cost analyses on all dual source procurements, only those where price analyses do not demonstrate adequate price competition and negotiation fails to achieve fair and reasonable prices without the support of a cost analysis. In fact, the proposed regulatory revision would require a cost analysis only in those cases where a price analysis indicates that dual source proposals are clearly noncompetitive and discussions with offerors prove fruitless. Another positive aspect of requiring a cost analysis on noncompetitive proposed prices is the postaward protection afforded by certified cost or pricing data. For example, contractor cost and pricing data certifications provide the Government the right of recovery when a contractor does not use the most current, complete, and accurate data in compiling its estimate. A postaward audit may indicate that the contractors defectively priced their proposals, in which case DoD would be entitled to a contract price reduction.

RECOMMENDATIONS FOR CORRECTIVE ACTION

1. We recommend that the Under Secretary of Defense for Acquisition direct the Defense Acquisition Regulations Council to revise Defense Federal Acquisition Regulation Supplement, part 215.804-3 (b)(S-70)(ii), to require that contracting officers:

a. Perform price analyses of dual source proposed prices, including, as appropriate, a comparison with recent contract unit prices and a comparison between proposed prices.

b. Obtain certified cost or pricing data and perform a cost analysis when a split award is anticipated and the price reasonableness of individual contractor proposed dual source unit prices cannot be determined by a price analysis, including negotiations with dual source contractors.

2. We recommend that the Director, Contract Management, Naval Sea Systems Command, direct contracting officers to obtain certified cost or pricing data and perform cost analyses of Fire Control System dual source proposed prices that are not competitive with recent contract unit prices or with each other and cannot be negotiated to fair and reasonable price levels.

3. We recommend that the Under Secretary of Defense for Acquisition report and track the material internal control weaknesses disclosed in this report, as required by DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987.

MANAGEMENT COMMENTS

The Director, Defense Procurement, partially concurred with Recommendation 1.a. The Director agreed that the need to perform a price analysis for dual source acquisitions should be made clearer. Therefore, the Director stated that DFARS coverage would be reworded to delete certain coverage that is either superfluous, incorrect, or confusing.

The Director disagreed that the analysis should specifically require a comparison with recent contract unit prices. The Director commented that contracting officers should use whatever price analysis techniques are required to ensure negotiation of fair and reasonable prices. The Director also stated that the Inspector General's recommendation was somewhat inconsistent with its finding, which supported use of another price analysis technique--comparison of dual source proposed prices.

The Director also partially concurred with Recommendation 1.b., which required a cost analysis when proposed prices were not competitive with the lowest prior contract unit prices. While the Director agreed that additional guidance was needed, the Director disagreed with the draft report recommendation that the lowest prior unit prices should serve as the only standard for judging price reasonableness for a dual source procurement. Therefore, the Director proposed that the DFARS require a cost analysis when price analyses and negotiations do not establish price reasonableness. The Director stated that she would direct a DFARS addition to include the alternative proposal.

The Navy nonconcurred with Recommendation 2. The Navy stated that contracting officers must consider more than the lowest prior contract unit price in assessing competitiveness in dual source acquisitions. The Navy stated that a complete price analysis would entail a comparison between vendor prices across the full range of potential quantity awards. The Commander, Naval Sea Systems Command, stated that cost analyses or negotiations were not needed for low quantity acquisitions because contracting officers considered such factors as contractor experience and quantity differences in making their price reasonableness determinations.

AUDIT RESPONSE

We agree that the Director's alternative action on Recommendation 1.a. will delete incorrect and confusing DFARS language. Specifically, the directed revision requires that contracting officers establish price reasonableness of both offerors rather than permitting contracting officers to simply accept the lowest combined proposed prices, as the current DFARS permits. We also agree with the Director's comment that contracting officers should use whatever price analysis techniques required to ensure negotiation of fair and reasonable prices.

Although we agree with the revision to the DFARS, we do not believe that the alternative action goes far enough to prevent a recurrence of a systemic condition found on this and prior audits, namely that contracting officers use inappropriate price analysis techniques on dual source acquisitions. More specific guidance on appropriate analytical techniques is needed.

We revised Recommendation 1.a. to add comparing proposed prices and to remove the inference that any specific technique should be mandatory. We added the technique because, as noted by the Director and as included in our finding, one contracting officer used this technique to negotiate a significant price reduction. In addition, the technique should have been used on five of seven additional low quantity awards because of the lack of competitiveness between the competing sources; the Navy awarded the five contracts to the higher priced vendor. Appendix B depicts the lack of competitiveness on the five contracts as well as the competitiveness achieved by using this technique on one contract.

We have accepted the Director's proposed alternative action for Recommendation 1.b. and have revised the recommendation accordingly. We agree that the proposed action will adequately guide contracting officers as to when a cost analysis should be performed. Specifically, the action requires that contracting officers perform price analyses and negotiate with contractors, as necessary, as a basis for determining whether a cost analysis is needed.

We ask that the Director provide final comments on Recommendations 1.a. and 1.b. We also request that the Director provide estimated completion dates for the planned actions on Recommendations 1.a. and 1.b.

We agree with the Navy's comment on Recommendation 2. that contracting officers must consider many factors in evaluating the reasonableness of proposed dual source prices. We also agree that contracting officers should have made a price comparison between competing sources across the full range of quantities solicited. In fact, the audit disclosed a lack of competitiveness between competing sources for low quantity awards (see page 10, "Competitiveness with prior prices," and Appendix B). The

lack of competitiveness between second source low quantity prices as well as the lack of competitiveness with recent contract unit prices should have prompted contracting officers to open discussions with the higher priced source as a means of obtaining competitive prices.

We revised Recommendation 2. based upon the Navy comments and to be consistent with Recommendation 1. Specifically, we added the price analysis technique of price comparison between competing sources because we agreed with both the Director, Defense Procurement, and the Navy's position that price comparisons between competing sources should be an integral part of price analyses. We also added the need for contracting officers to attempt negotiating noncompetitive prices with dual source contractors before considering cost analysis because of the Director, Defense Procurement's, proposed action on Recommendation 1.b. Therefore, we ask that the Navy provide final comments on Recommendation 2.

We renumbered draft Recommendation 1. as Recommendation 2. and draft Recommendation 2. as Recommendation 1. in this final report to make the issues more understandable in terms of the comments received and our response to the comments.

Concerning draft Recommendation 3., which recommended that the Navy assist contracting offices in implementing the revised DFARS and in determining when to request certified cost or pricing data, we agree with the Navy's statement that the audited acquisitions predated the November 1990 revision to DFARS. However, we deleted draft Recommendation 3. because the Director, Defense Procurement, proposed an alternative action to Recommendation 1.b., which, if implemented, will satisfy the intent of draft Recommendation 3. The action advises contracting officers that certified cost or pricing data should be requested for dual source acquisitions when price reasonableness cannot be established through price analyses and negotiations. The Navy should update its acquisition supplements when the new coverage is added to the DFARS; the other Military Departments may need to do likewise.

We also ask that the Under Secretary of Defense for Acquisition provide comments on new Recommendation 3., which was not included in the draft report. We added the recommendation because DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987, requires that material internal control weaknesses be reported and tracked.

STATUS OF RECOMMENDATIONS

Number	Addressee	Response Should Cover: Concur/ Nonconcur	Proposed Action	Completion Date
1.a.	Under Secretary of Defense for Acquisition	X	X	X
1.b.	Under Secretary of Defense for Acquisition	X	X	X
2.	Director, Contract Management, Naval Sea Systems Command	X	X	X
3.	Under Secretary of Defense for Acquisition	X	X	X

PART III - ADDITIONAL INFORMATION

Appendix A - Fire Control System Components - Comparison of Prior Sole and Dual Source Prices
Appendix B - Fire Control System Components - Comparison of Prime and Second Source Unit Prices For Low Quantity Award
Appendix C - Premium to Dual Source the Fire Control System
Appendix D - Fire Control System Components - Sole Source Negotiated Reduction Rate Applied to Noncompetitive Dual Source Contract Prices
Appendix E - Summary of Potential Monetary and Other Benefits Resulting from Audit
Appendix F - Activities Visited or Contacted
Appendix G - Report Distribution

APPENDIX A: FIRE CONTROL SYSTEM COMPONENTS - COMPARISON OF PRIOR SOLE AND DUAL SOURCE PRICES

(Dollars in Thousands, FY 1990 Dollars)

CONTINUOUS WAVE ILLUMINATOR TRANSMITTER

	Fiscal Year	Units	Contract Unit Price	Percent Change 1/
PRIOR SOLE SOURCE				
	1978	4	$4,336	
	1979	(No Contract buys in FY 1979)		
	1980	4	$3,483	
	1981	8	$1,836	
	1982	12	$1,218	
	1983	12	$1,142	
	1984	12	$1,160	
	1985	15	$1,122	
	1986	12	$1,188	
	1987	18	$1,112	
DUAL SOURCE HIGH QUANTITY				
	1988	16	$1,085	(2.4)
	1989	12	$1,100	1.4
	1990	12	$1,061	(2.2)
LOW QUANTITY				
	1988	4	$1,646	48.0
	1989	3	$1,809	66.7
	1990	3	$1,746	60.9

DIRECTOR/DIRECTOR CONTROLLER

	Fiscal Year	Units	Contract Unit Price	Percent Change 1/
PRIOR SOLE SOURCE				
	1978	4	$4,092	
	1979	(No Contract buys in FY 1979)		
	1980	4	$3,586	
	1981	8	$2,421	
	1982	12	$1,883	
	1983	12	$1,724	
	1984	14	$1,713	
	1985	15	$1,530	
	1986	12	$1,529	

APPENDIX A: FIRE CONTROL SYSTEM COMPONENTS - COMPARISON OF PRIOR SOLE AND DUAL SOURCE PRICES (cont'd)
(Dollars in Thousands, FY 1990 Dollars)

	Fiscal Year	Units	Contract Unit Price	Percent Change
DUAL SOURCE HIGH QUANTITY				
	1987	14	$1,149	(24.9)
	1988	11	$1,108	(3.6)
	1989	15	$1,207	8.9
	1990	19	$1,255 2/	13.3
LOW QUANTITY				
	1987	4	$2,149	40.5
	1988	6	$1,808	57.4
	1989	4	$2,124	91.7
	1990	3	$1,972 2/	78.0

1/ From lowest recent contract unit price. The schedule shows only the percentage changes for dual source contract unit prices because percentage changes for sole source contract prices are not germane to the audit issue.

2/ The FY 1990 contracts included priced option for FY 1991. The high quantity option price for 15 units was $1,015 each, and the low quantity option price for 3 units was $2,291 each.

APPENDIX B: FIRE CONTROL SYSTEM COMPONENTS - COMPARISON OF PRIME AND SECOND SOURCE UNIT PRICES FOR LOW QUANTITY AWARD

(Dollars in Thousands)

CONTINUOUS WAVE ILLUMINATOR TRANSMITTER

Fiscal Year	Low Quantity	Prime	Second		Difference Price	Difference Percent
1988	4	$1,519	$1,531	*	$ 12	.8
1989	3	$1,355	$1,746	*	$391	28.9
1990	3	$1,353	$1,746	*	$393	29.0

DIRECTOR/DIRECTOR CONTROLLER

Fiscal Year	Low Quantity	Prime		Second		Difference Price	Difference Percent
1987	4	$1,598		$1,927	*	$329	20.6
1988	6	$1,404		$1,681	*	$277	19.7
1989	4	$1,915		$2,050	*	$135	7.0
1990	3	$1,972	*	$2,753		$781	39.6

* Actual Award Unit Prices

APPENDIX C: PREMIUM TO DUAL SOURCE THE FIRE CONTROL SYSTEM

(Dollars in Thousands)

CONTINUOUS WAVE ILLUMINATOR TRANSMITTER

Fiscal Year	Actual Dual Source Award Price	Winner Take All Price	Premium (Percent) *	
1988	$23,330	$20,411	$ 2,919	(14)
1989	$18,745	$14,970	3,775	(25)
1990	$18,748	$14,695	4,053	(28)
Subtotal Cost			$10,747	

DIRECTOR/DIRECTOR CONTROLLER

Fiscal Year	Actual Dual Source Award Price	Winner Take All Price	Premium (Percent) *	
1987	$23,099	$19,006	$ 4,093	(22)
1988	$22,370	$18,047	4,323	(24)
1989	$25,913	$22,620	3,293	(15)
1990	$31,845	$26,954	4,891	(18)
Subtotal Cost			$16,600	
Total Cost			$27,347	

* The difference between actual dual source award price and winner take all price. We computed the percentages by dividing the premiums by the winner take all price.

APPENDIX D: FIRE CONTROL SYSTEM COMPONENTS SOLE SOURCE PRICES APPLIED TO NONCOMPETITIVE DUAL SOURCE PRICES

SOLE SOURCE PRICES

CONTINUOUS WAVE ILLUMINATOR TRANSMITTER

FISCAL YEAR	PROPOSED	NEGOTIATED	DIFFERENCE	PERCENT
1984	$118,804,638	$103,000,000	$15,804,638	13.30
1985	112,072,683	94,200,000	17,872,683	15.95
1986	90,187,932	74,822,000	15,365,932	17.04
1987	124,640,000	117,800,000	6,840,000	5.49
TOTALS	$445,705,253	$389,822,000	$55,883,253	12.54

DIRECTOR/DIRECTOR CONTROLLER

1984	$26,176,200	$20,833,900	$5,342,300	20.41
1985	22,752,300	19,500,000	3,252,300	14.29
1986	20,068,111	16,226,600	3,841,511	19.14
TOTALS	$68,996,611	$56,560,500	$12,436,111	18.02

NONCOMPETITIVE DUAL SOURCED PROCUREMENTS

CONTINUOUS WAVE ILLUMINATOR TRANSMITTER

	FISCAL YEAR	CONTRACT PRICE	PERCENTAGE DECREASE	COST
LOW QUANTITY	1989	$5,237,281 1/	12.54	$656,755
LOW QUANTITY	1990	$5,237,281 1/	12.54	656,755
		SUBTOTAL		$ 1,313,510
DIRECTOR/DIRECTOR CONTROLLER				
LOW QUANTITY	1987	$ 7 709,480 1/	18.02	$ 1,389,248
LOW QUANTITY	1988	$10,086,609 1/	18.02	1,817,607
LOW/HIGH QUANTITY	1989	$25,676,456 2/	18.02	4,626,897
LOW/HIGH QUANTITY	1990	$29,760,933 2/	18.02	5,362,920
		SUBTOTAL		$13,196,672
		TOTAL COST		$14,510,182

1/ Proposed price includes second source only.
2/ Proposed price includes prime and second source.

APPENDIX E: SUMMARY OF POTENTIAL MONETARY AND OTHER BENEFITS RESULTING FROM AUDIT

Recommendation Reference	Description of Benefit	Amount and/or Type of Benefit
1.a.	Internal Control. Revised DFARS will ensure adequate analysis of proposed prices.	Nonmonetary.
1.b.	Internal Control. Revised DFARS will result in lower contract prices, but the amount is not quantifiable.	Not Quantifiable.
2.	Economy and Efficiency. Will result in lower contract prices, but the amount cannot be estimated.	Not Quantifiable.
3.	Internal Control. Will ensure adequate focus on corrective actions.	Nonmonetary.

APPENDIX F: ACTIVITIES VISITED OR CONTACTED

Office of the Secretary of Defense

Assistant Secretary of Defense (Production and Logistics), Washington, DC

Department of the Navy

Assistant Secretary of the Navy (Research, Development and Acquisition), Washington, DC
Naval Sea Systems Command, Washington, DC
Naval Center for Cost Analysis, Washington, DC
Naval Investigative Service, Washington, DC
Naval Surface Warfare Center, White Oak, MD

Defense Agency

Defense Systems Management College, Fort Belvoir, VA

APPENDIX G: REPORT DISTRIBUTION

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition
Assistant Secretary of Defense (Production and Logistics)
Assistant Secretary of Defense (Program Analysis and Evaluation)
Comptroller of the Department of Defense
  Deputy Comptroller (Program and Budget)
Director, Defense Research and Engineering
Director, Defense Acquisition Regulations Council

Department of the Army

Secretary of the Army

Department of the Navy

Secretary of the Navy
Assistant Secretary of the Navy (Financial Management)
Assistant Secretary of the Navy (Research, Development and Acquisition)
Headquarters, Naval Sea Systems Command
  Aegis Program Manager
  Director, Contract Management
Comptroller of the Navy

Department of the Air Force

Secretary of the Air Force

APPENDIX G: REPORT DISTRIBUTION (cont'd)

Non-DoD Activities

Office of Management and Budget
U.S. General Accounting Office, NSIAD Technical Information Center

Congressional Committees:

Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
Senate Ranking Minority Member, Committee on Armed Services
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Ranking Minority Member, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Operations
House Subcommittee on Legislation and National Security, Committee on Government Operations

PART IV - MANAGEMENT COMMENTS

Under Secretary of Defense for Acquisition

Assistant Secretary of the Navy (Research, Development and Acquisition)

MANAGEMENT COMMENTS FROM THE UNDER SECRETARY OF DEFENSE FOR ACQUISITION

OFFICE OF THE UNDER SECRETARY OF DEFENSE
WASHINGTON, DC 20301

ACQUISITION

DP/CPF

AUG 16 1991

MEMORANDUM FOR DIRECTOR, ACQUISITION MANAGEMENT DIRECTORATE, DODIG

THRU: CHIEF, CONGRESSIONAL ACTIONS AND INTERNAL REPORTS

SUBJECT: Draft Report on the Cost-Effectiveness of Dual Sourcing Major Components of the Aegis Weapon System (Project No. OAE-5005)

This is in response to your June 20 request for our comments on the subject draft report. Our response to report recommendation two is attached.

We agree that when price reasonableness cannot be determined on the basis of price analysis, the adequate price competition exemption at FAR 15.804-3(a)(1) does not apply; we will revise the coverage at DFARS 215.804-3(b)(S-70) to further clarify the guidance. We disagree, however, that certified cost or pricing data should be obtained when proposed unit prices are not competitive with the lowest prior contract unit prices. Since unit prices are a function of the quantity to be awarded, no conclusions can be reached on the reasonableness of a unit price simply through a comparison with prior contract unit prices. Instead, a number of variables must be analyzed, to include the total quantities competed, and the range of unit prices proposed.

Thank you for the opportunity to comment on the draft report.

Eleanor Spector

Eleanor R. Spector
Director, Defense Procurement

Attachment

RECOMMENDATIONS

Rec. 1. **2. We recommend that the Under Secretary of Defense for Acquisition direct the Defense Acquisition Regulations (DAR) Council to revise Defense Federal Acquisition Regulation Supplement (DFARS), part 215.804-3(b)(S-70)(ii), to require contracting officers to:**

Rec. 1.a. **a. Perform price analyses of dual source proposed prices, including a comparison with recent contract unit prices to assess the adequacy of price competition.**

Director, Defense Procurement Response: Partially concur. We agree that the need to perform price analyses for dual source acquisitions should be made clearer in the DFARS coverage. A price analysis is required for each negotiated contract where certified cost or pricing data are not obtained (Federal Acquisition Regulation (FAR) 15.805-1(b)). We believe this clarification can best be accomplished by deleting certain coverage which is either superfluous, incorrect, or confusing. We will direct the DAR Council to reword DFARS 215.804-3(b)(S-70)(ii) as follows:

> (ii) Adequate price competition normally exists when (A) prices are solicited across a full range of step quantities, normally including a 0-100 percent split, from at least two offerors who are individually capable of producing the full quantity, and (B) the price reasonableness of all prices awarded is clearly established on the basis of price analysis.

We do not agree that the DFARS coverage should specifically require the price analysis to include a comparison with recent contract unit prices. FAR 15.805-2 identifies a number of price analysis techniques, but assigns the contracting officer the responsibility to select and use whatever techniques will ensure a fair and reasonable price; we believe the contracting officer must retain this responsibility. The Inspector General recommendation that contracting officers be required to use this particular price analysis technique (described at FAR 15.805-2(b)) is somewhat inconsistent with its finding that on one contract, a contracting officer negotiated a reduction in the lower quantity source's proposed price such that the negotiated price was almost identical to the higher quantity source's price. This finding would seem to endorse the use of the price analysis technique described at FAR 15.805-2(a)--comparison of proposed prices received in response to the solicitation.

ATTACHMENT

Rec. 1.b.

b. Obtain certified cost or pricing data and perform a cost analysis when a split award is anticipated and the individual contractor proposed dual source unit prices are not competitive with the lowest prior contract unit prices.

Director, Defense Procurement Response: Partially concur. We do not agree that the lowest prior unit prices should serve as the only standard for judging price reasonableness for a dual source procurement. As clearly stated in FAR 15.805-2(b), prior prices may need to be adjusted for differences in specifications, quantities ordered, time for delivery, efficiency improvements, etc., in order to provide a suitable basis for comparison.

We believe the recent change made to DFARS 215.804-3(b)(S-70)(i) (which requires deliberation, thorough review, and case-by-case determinations of adequate price competition) should resolve the concerns raised by the Inspector General, especially since the procurements reviewed by the Inspector General were awarded prior to this change in the coverage. However, we will direct the DAR Council to add a new subparagraph to existing DFARS coverage to explicitly advise contracting officers that if price reasonableness cannot be determined on the basis of price analysis, the exemption from submission of certified cost or pricing data based on adequate price competition on dual source programs does not apply. This change also recognizes that the determination of price reasonableness should allow for discussions with the offeror. The new coverage will be as follows:

> (iii) If price reasonableness cannot be determined on the basis of price analysis, including the results of negotiations, the exemption at FAR 15.804-3(a)(1) from submission of certified cost or pricing data shall not apply.

Department of the Navy Response
to
DoDIG Draft Audit Report of 20 June 1991
on
Cost-Effectiveness of Dual Sourcing Major Components
of the AEGIS Weapon System
(Project No. OAE-5005)

Finding: Dual source acquisition of the AWS (AEGIS Weapon System) generally did not result in adequate price competition, and price analyses by contracting officers did not adequately establish the fairness and reasonableness of proposed prices. In the absence of adequate price competition, contracting officers should have bargained with offerors and, if necessary, requested and used certified cost or pricing data to perform cost analyses supporting further negotiations. This condition occurred because Defense procurement regulations permitted contracting officers to accept dual source proposed prices without adequately analyzing or negotiating the prices and did not specify criteria for performing price and cost analyses. In addition, Navy procurement regulations discouraged contracting officers from obtaining certified cost or pricing data or performing cost analyses on dual source acquisitions. Dual source contract prices could have been $14.5 million (17 percent) lower if contracting officers obtained and evaluated certified cost or pricing data and used the data to negotiate fair and reasonable prices.

DoN Position: We nonconcur.

We do not agree that Defense procurement regulations permit contracting officers to accept dual source proposed prices without adequate analysis. DFARS 215.804-3(b)(S-70) clearly states that "In the case of dual source programs, the determination of adequate price competition must be made on a case-by-case basis and contracting officers must exercise deliberation and thorough review in making such determination."

Further, we disagree that Navy procurement regulations discourage contracting officers from obtaining certified cost or pricing data. NAPS 15.804-3(b)(3)(iii) merely cites dual source procurements as an example of contracts for which prices may be based on adequate price competition.

Finally, we disagree that obtaining cost or pricing data in this case would have allowed the government to negotiate prices 17% lower than those proposed.

Recommendation:

Rec. 2. 1. We recommend that the Director, Contract Management, Naval Sea Systems Command, direct contracting officers to obtain certified cost or pricing data and perform cost analyses of Fire Control System dual source proposed prices that are not competitive with the lowest prior contract award unit price.

DoN Position: We nonconcur. The recommendation would inappropriately, and unrealistically, limit the determination of adequate price competition to considerations of unit price comparability. It is an over-simplification of proper price analysis to think that conclusions on price competition can be made based solely on comparisons with prior pricing, and then with no allowance made for differences in quantity, design, or contract terms and conditions. The DFARS states that the determination of adequate price competition for dual source procurements must be made on a case-by-case basis following a deliberate and thorough review. Comparisons with the lowest prior contract award unit price represents only one element of a complete price analysis, which would entail unit price comparisons across the full 0 to 100% range of potential quantity awards.

Rec. deleted 3. We recommend that the Assistant Secretary of the Navy (Research, Development and Acquisition) revise the Navy Acquisition Procedures Supplement, parts 15.804 and 15.804-3 to include:

a. Supplemental guidance to assist contracting officers in implementing the revised Defense Federal Acquisition Regulation Supplement.

b. Direction to Procurement Contracting Officers that in dual source acquisitions certified cost or pricing data can be requested after receipt of contractor proposals if adequate price competition is not evident from price analysis alone, as defined in the revised Defense Federal Acquisition Regulation Supplement.

DoN Position: We nonconcur. The procurements reviewed in the subject audit report pre-date the current DFARS coverage incorporated by DAC 88-16, dated 16 November 1990, to require a case-by-case determination of adequate price competition following a deliberate and thorough review. This guidance clearly addresses the concerns of inadequate price analysis discussed in the draft audit report. The report should not conclude from a review of procurements awarded prior to incorporation of the new coverage that supplemental guidance and direction is required.

DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
WASHINGTON D.C. 20362-5101

IN REPLY REFER TO
4280
OPR: 025
Ser: 02B/493
August 27, 1991

MEMORANDUM

From: SEA 02B
To: SEA 00N3

Subj: COMMENTS ON DODIG DRAFT AUDIT REPORT OAE-5005

Encl: (1) Proposed response to DODIG Report OAE-5005

1. Enclosure (1) is forwarded in response to your request for comments on the subject report.

Fred L. Sheridan
Assistant Deputy Commander for Contracts

ENCLOSURE(2)

DEPARTMENT OF THE NAVY

NAVAL SEA SYSTEMS COMMAND
WASHINGTON D.C. 20362-5101

IN REPLY REFER TO
4280
OPR: 0251
Ser: 025/

MEMORANDUM FOR THE ASSISTANT SECRETARY OF THE NAVY (RESEARCH, DEVELOPMENT AND ACQUISITION)

Subj: COMMENTS ON DODIG DRAFT AUDIT REPORT OAE-5005

Ref: (a) Draft Audit Report on Cost Effectiveness of Dual Sourcing Major Components of the Aegis Weapon System

1. The following comments on reference (a) are forwarded for incorporation into the Navy response.

2. We do not concur with the findings of the subject report, nor do we concur with the recommendations including the first recommendation for action by the Naval Sea Systems Command.

3. Discussion of findings:

The DODIG report finds that eight of fourteen Aegis Weapon System dual source contract prices were not competitive because proposed unit prices were higher than the lowest prior contract unit price and that the higher unit prices were accepted as fair and reasonable based on incomplete price analyses.

a. Inadequate price competition. Do not concur.

DFARS 215.804-3(b)(S-70) states that in the case of dual source competitions, adequate price competition normally exists where proposals are solicited across a full range of step quantities, the possibility exists for zero and one hundred percent awards to the offerors and a split award is made in which the combined prices of both awards represents the lowest evaluated combined price. The report acknowledges that the Navy met these requirements but concludes nonetheless from its own price analysis that competition was inadequate. NAVSEA believes the DODIG price analysis to be flawed and simplistic, as noted below.

b. Inadequate price analysis. Do not concur.

The report conducts its own price analysis, comparing award prices to the lowest previous prices paid. Where awards were made at prices higher than the lowest previous price paid, the report concludes that cost analysis and negotiations would have resulted in lower prices. The report further concludes that disparities in price between the original source and the second source represent a lack of competitiveness between sources. The Navy believes this to be overly simplistic price analysis. This

Subj: COMMENTS ON DODIG DRAFT AUDIT REPORT OAE-5005

approach fails to recognize that price analysis must take into account, for example, changes in specifications or in terms and conditions, differences in quantities and differences in experiences of contractors on a cost reduction curve. For example, the report notes that no cost analysis was done on the FY 1989 second source CWI transmitter price despite its being sixty-seven percent higher than the lowest prior price paid the original source. The report ignores in this and similar examples that the midpoint unit for 1989 was unit number six for the second source while the lowest prior price was midpoint unit one hundred and five for the original source. The Navy gave consideration to this in its assessment of reasonableness.

The DODIG's analysis also ignores quantity differences, although the report states on page eighteen that, "Quantity differences generally impact unit prices by making a higher price fair and reasonable." The Navy's price analyses considered cost reduction curve experience and quantity differences, and included comparisons between contractors' pricing for the same and similar quantities for the current and prior years as well as comparisons with prior sole source pricing in assessing the reasonableness of pricing. In the judgement of the contracting officers the pricing was considered to be fair and reasonable. The analyses performed by NAVSEA's contracting officers is not only considered adequate, but far more realistic than that used in the report.

4. Discussion of recommendation:

Report recommendation: "We recommend that the Director, Contract Management, Naval Sea Systems Command, direct contracting officers to obtain cost and pricing data and perform cost analyses of Fire Control System dual source proposed prices that are not competitive with the lowest prior contract award unit price."

Discussion: NAVSEA does not concur. Contracting Officers must consider more than just the lowest prior contract award unit price in assessing the competitiveness of proposed pricing in a dual source competition. In the situation described, a sophisticated price analysis may well have the capability to ensure proper pricing. That decision needs to be made at the time offers are received. In this connection, current guidance allows the Contracting Officer the latitude to decide on the type of analysis necessary on the basis of all facts as they present themselves.

AUDIT TEAM MEMBERS

Donald E. Reed, Director, Acquisition Management Directorate
Russell A. Rau, Program Director
John M. Donnelly, Project Manager
David Leising, Contract Specialist
John M. Seeba, Team Leader
Jerel Silver, Team Leader
James F. Friel, Auditor
Matthew Kirdi, Auditor
N. Dale Gray, Auditor