AD-A064 863 NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF F/G 5/1
WEAPON SYSTEMS SOURCE SELECTION: IS FOUR - STEP THE ANSWER.(U)
DEC 78 M J MILLER

UNCLASSIFIED NL

1 OF 2
AD
A064863

NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

WEAPON SYSTEMS SOURCE SELECTION:
IS FOUR-STEP THE ANSWER?

by

Michael James Miller

December 1978

Thesis Advisor: David N. Burt

Approved for public release; distribution unlimited

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Weapon Systems Source Selection: Is Four-Step the Answer?		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis; December 1978
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Michael James Miller		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Naval Postgraduate School Monterey, California 93940		12. REPORT DATE December 1978
		13. NUMBER OF PAGES 124
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Procurement; Source Selection; Material Acquisition; Requests for Proposals; Weapon Systems; Proposals; Price Competition; Specifications; ASPR; Contract Management; Procurement Management; Contract Awards.

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

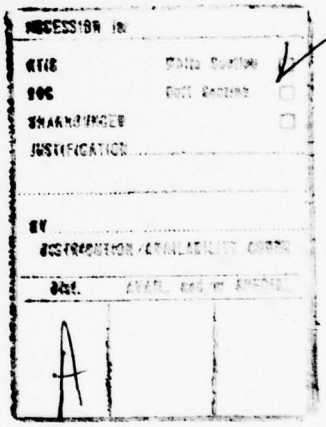
The Department of Defense source selection process for negotiated acquisitions has been plagued by charges of unfair competition and unsound business practices for years. Beginning with the Harvard Weapons Acquisition project in 1962, continuing with various Industry studies in the 1960's through the findings of the Commission on Government Procurement released in the early 1970's, DOD weapon systems acquisition procedures have come under

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE
S/N 0102-014-6601 |

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

20. (continued)

close scrutiny and increased criticism. Past statutes have failed to control, and even encouraged such practices as "technical leveling," "technical transfusion," "auctioning," and "buy-ins." Poorly written Requests for Proposal have added to the confusion and uncertainty surrounding the source selection process. In 1976, DOD began a two year test study of a source selection method called "Four-Step" which had been adapted from NASA procedures. The four steps in the process were (1) submission and evaluation of technical proposals; (2) submission and evaluation of cost proposals as well as revisions to technical proposals; (3) the establishment of a common cut-off date for "best and final" offers and selection of the apparent winning contractor; and (4) negotiation and award of a definitive contract. This study looks at current procedures and the history of continuing problems. The probable effects of the new Four-Step procedures on those problems are then analyzed. Finally recommendations are presented for changes to the new DAR 4-107 text adopted in October 1978.



Approved for public release; distribution unlimited

Weapon Systems Source Selection:
Is Four-Step the Answer?

by

Michael James Miller
Lieutenant Commander, Supply Corps, United States Navy
B.A., University of California, 1967

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the
NAVAL POSTGRADUATE SCHOOL
December 1978

Author Michael James Miller

Approved by: David R. Burt
Thesis Advisor

[signature]
Second Reader

[signature]
Chairman, Department of Administrative Sciences

[signature]
Dean of Information and Policy Sciences

ABSTRACT

The Department of Defense source selection process for negotiated acquisitions has been plagued by charges of unfair competition and unsound business practices for years. Beginning with the Harvard Weapons Acquisition project in 1962, continuing with various Industry studies in the 1960's through the findings of the Commission on Government Procurement released in the early 1970's, DOD weapons system acquisition procedures have come under close scrutiny and increased criticism. Past statutes have failed to control, and even encouraged such practices as "technical leveling," "technical transfusion," "auctioning," and "buy-ins." Poorly written Requests for Proposal have added to the confusion and uncertainty surrounding the source selection process. In 1976, DOD began a two year test study of a source selection method called "Four-Step" which had been adapted from NASA procedures. The four steps in the process were (1) submission and evaluation of technical proposals; (2) submission and evaluation of cost proposals as well as revisions to technical proposals; (3) the establishment of a common cut-off date for "best and final" offers and selection of the apparent winning contractor; and (4) negotiation and award of a definitive contract. This study looks at current procedures and the history of continuing problems. The probable effects of the new Four-Step procedures on those problems are then analyzed. Finally, recommendations are presented for changes to the new DAR 4-107 text adopted in October 1978.

TABLE OF CONTENTS

I. INTRODUCTION

A. PROBLEM

The solicitation, evaluation, and selection of the sources to provide major weapons systems and subsystems for the Department of Defense are among the most complex and important tasks in Government acquisition today. A "system" is a composite of equipment, skills, and techniques capable of performing an operational role in response to an identified defense need. A complete system includes various subsystems - all equipment, related facilities, material, software, services and personnel - required for its operation and support as a self-sufficient entity, capable of performing a specific function in its foreseeable future environment. A system has a Life-cycle process from recognition of need through conception, development, production, operation, and eventual obsolescence. In general, a system is considered "major" when it requires a closely integrated technical and management approach to plan the system requirements; to design, develop, integrate, and test the system; and to provide the means to closely control the acquisition of the system. Major systems are usually complex from a technological and management standpoint, and often present an appreciable degree of technological and business risk. Because of these characteristics there is usually a relatively high degree of uncertainty in projected cost, performance, and delivery schedule for systems. Total system cost, significance, and urgency are also factors which are considered in identifying

major systems. The actual threshold which specifically defines a system as "major" for reporting and control purposes is an anticipated cost of $75 million in research, development, test and evaluation, or $300 million in production. The practical differences between managing a $75 million development program and a $55 million one are those of degree, however, not ones of "major" or "non-major." Problems preculiar to weapons systems acquisition are inherent in smaller projects ($2 million to $74 million) as well as the major projects ($75+). Statutory rules are the same covering all sizes of acquisitions, but agency directives change the management and reporting requirements for a program defined as "major." For purposes of this study, "major" shall refer to the narrative description given above, vice a specific dollar threshold.

There are typically hundreds of contracts written during the life of given major system. These contracts range from the initial study contracts, awarded during the conceptual phase of system development to a number of contractors to: (1) advanced development efforts directed toward a component or sub-system; (2) contracts for prototypes of the prime item of the system; (3) the contract for full-scale development; (4) initial and subsequent production contracts; and finally, (5) support of an operational system - contracts for spares and services.

The most critical and important contracting action, however, is that which occurs in connection with the final selection of a source at the time of initiation of full-scale development. At this phase there are still significant uncertainties

and risks involved in the project, not the least of which is the selection of the best contractor for the job. The successful completion of a major system acquisition depends greatly upon selection of the best contractor. A poor selection is likely to result in an overall poor acquisition, regardless of whatever else is done. Equally important is the fact that Industry places major emphasis on source selection. A particular company's continued existence as a defense contractor may hinge on a single act of source selection in the full-scale development phase for a major project. Many competitions are fights for survival, a sign of excess capacity in some cases. (40:3)

The prime objectives of the source selection process are to (a) select the source whose proposal has the highest degree of realism and credibility and whose performance is expected to best meet Government objectives at an affordable cost; (b) assure impartial, equitable, and comprehensive evaluation of competitors' proposals and related capabilities; and (c) maximize efficiency and minimize complexity of solicitation, evaluation and the selection decision. (96:III.A.1)

Various factors tend to inhibit the attainment of the above objectives. A pervasive factor is the Government's dominant market position in a monopsonistic environment (only one buyer and many sellers). Contributing factors include various provisions in the actual acquisition procedures themselves, as detailed in the Defense Acquisition Regulations (DAR), and as interpreted by the Comptroller General. The principal internal

agency regulation written specifically on the subject, DOD Directive 4105.62 "Selection of Contractual Sources for Major Defense Systems," tries to counterbalance some of the statutory and procedural shortcomings, but is still too new (1976) to be evaluated for effectiveness.

Not surprisingly, communications breakdowns (poorly written Requests for Proposals - RFP's) also compound the system frustration. Past source selection problems have led to program overruns, lengthy schedule delivery delays, significant performance shortfalls, and program cancellations.

B. PURPOSE AND OBJECTIVES OF THE STUDY

The purpose of this study is to examine the new Department of Defense "Four-Step" source selection method in an effort to determine its potential impact on past source selection system weaknesses. "Four-Step" is a method of source selection originally developed by NASA in the late 1960's. Four-Step separates the submission of cost and technical proposals, restricts discussions with offerors to "clarifications," and limits actual contract negotiations to a single contractor. Objectives to be investigated include how Four-Step will affect:

1. The role of the RFP;

2. Technical leveling (the practice of discussing and correcting deficiencies in an offeror's proposal until it at least meets the Government's minimum requirements);

3. Technical transfusion (the practice of passing one offeror's idea to other competing offerors);

4. Auctioning (the practice of playing off one contractor against the others in a predominantly "price competitive" situation);

5. Buy-ins (the practice of a contractor bidding below his estimated cost for a development project with the assumption that he will recoup his initial losses with later changes and/or production work); and

6. The selection of the best contractor.

C. BACKGROUND AND FOUNDATIONS

DAR calls for two basic methods of procurement - formal advertising and negotiations. Formal advertising dates back to the early 19th century and is still the statutorily preferred method of Government procurement. Two basic requirements must be met for formal advertising to be effective. The specifications/functions of the end product must be well defined, i.e. all suppliers must be able to bid on the same item; and there must in fact be sufficient competition to assure the Government of a fair price. In the major weapon systems acquisition environment either one or both of the above requirements are almost always missing. Research and development does not inherently lend itself to formal advertising. DAR recognizes seventeen situations which would allow negotiations in the place of formal advertising. The exceptions most utilized for weapons development and acquisition are #10 "Supplies or services for which it is impracticable to secure competition by formal advertising;" #11 "Experimental, developmental, or research work;" and #14 "Technical or special property . . . which requires a

substantial initial investment or an extended period of preparation for manufacture."

The following paragraphs will describe the current source selection process and its statutory framework of negotiations procedures. Problems this process has fostered will then be examined, both by referring to the very rich literature history, and by relating findings of the researcher's September 1978 San Francisco Bay Area Industry survey.

1. Source Selection Process

The Department of Defense (DOD) source selection process for negotiated procurements, as referred to in this paper, begins with the pre-solicitation phase, where requirements are defined; contractor proposals are then solicited, received, and evaluated. Subsequently, discussions/negotiations are held between the Government and the offerors, and finally, a successful contractor is chosen based on technical, cost, and other factors considered.

a. Pre-solicitation Phase

The pre-solicitation phase begins with the receipt of a requirement by the procurement office and ends with the issuance of the RFP which seeks to satisfy the requirement. This phase is extremely important to a successful source selection. It includes the formulation of the "Statement of Work" (SOW) which communicates to the offerors what the Government wants. Evaluation criteria are developed. A Government cost estimate is prepared. The qualified source list is compiled; the RFP is written; and the acquisition is then synopsized in

the Commerce Business Daily (CBD) ten days before the RFP is issued.

(1) Statement of Work

The Statement of Work (SOW) must define clearly, concisely, and completely the requirements of the effort to be performed. It should be free from ambiguity and redundancy. The SOW describes the system, equipment, and services to be provided, i.e., the work to be done, the methods by which the Government will determine that its requirements have been met, and technical and management data to be delivered under the contract, once it is awarded. The SOW will directly affect the amount and quality of competiton for the project. If specifications are too restrictive, contractors may feel that they will not have a fair chance for selection (i.e., that specifications have been "tailored" to another contractor). If specifications are too vague, contractors may be reluctant to propose because they do not feel that they really understand what the Government wants, or what the risks will be. Failure to adequately describe the scope of the work to be done may result in needless delays in subsequent modifications to the RFP. An unclear SOW may also encourage contractors to build in costly contingency allowances to cover the uncertainties. Skill and care in drafting of the SOW can significantly contribute to reducing the size of subsequent proposals.

(2) Evaluation Criteria

DAR 3-501(b) Section D requires that the significant evaluation factors developed for the solicitation be

stated in the RFP, in their relative order of importance. The numerical weights used by the Government agency in the actual evaluation exercise are not allowed to be published. The Comptroller General has reaffirmed his support of this policy several times. (76; 80)

Proposal evaluation factors are usually divided into the following three categories:

(a) Technical

- understanding of the RFP
- manufacturing capability
- quality assurance program
- technical experience and capability

(b) Management

- company organization
- personnel resources
- management control system

(c) Cost

- reasonableness, appropriateness, realism

(3) Cost Estimate

The cost estimate for the program is generated by the technical people who are also responsible for the SOW. They may develop the estimate in-house, or contract for an "independent cost estimate" (ICE) from a number of sources. This cost estimate is used as a basis for subsequent evaluation of the fairness and reasonableness of contractor cost proposals. A cost estimate is only that, however, an estimate. All cost parameters are not foreseeable since many contractors propose solutions to the Government's requirements that are innovative or unorthodox. The Government is often put in the uncomfortable position of passing judgement on the reasonableness of the cost

estimate of a proposal that it does not fully understand. In that situation the contractor's estimate will be difficult to refute.

(4) Bidders List

Each procuring activity maintains "bidders lists" composed of those firms who have signified their interest in doing business with that particular agency. Each company submits information concerning the products or services which it desires to sell and its capabilities and experience to do so. Bidders lists are maintained for the convenience of the Government. Being placed on one does not insure that a company will be informed of all Government procurements that may be of interest to it. An agency may follow a rotation policy to try to spread the Government work around for products/services which have long bidders lists. A company that finds out about a procurement action, but was not sent an RFP, can request one from the originating agency and join the competition. Bidders lists are updated constantly by contacts with Industry marketing representatives. When a particular RFP is ready for distribution to potential sources, the bidders list is used as the basic reference guide, and RFP's mailed accordingly.

(5) Request for Proposal

The Request for Proposal (RFP) is the official communication from the Government to Industry asking for proposals for a particular need. The format for the RFP is outlined in DAR 3-501. There is not, however, a specified procedure required for the formulation of information that goes

into the RFP. That varies from agency to agency. Most agencies have internal directives which give explicit instructions, i.e., Air Force RFP Preparation Guide, ASD Pamphlet 70-4. Basically the RFP is a team effort, with contributions from technical, operational, legal, logistic support, financial, and acquisition contracting (previously referred to as "procurement") personnel. The objective of the RFP is to provide prospective offerors with adequate information and guidance, presented in a clear and logical manner, to elicit proposals containing all the information needed for objective evaluation and selection of the best contractor for the project. A Government RFP will contain the usual composite of terms, certifications, and representations, followed by solicitation instructions, evaluation factors, descriptions/specifications, delivery schedule, quality assurance/inspection requirements, and the form of the eventual contract, i.e., cost-type, fixed price. The RFP should also give an overview and background of system and design requirements. It should tell Industry what the data requirements will be, what contractor guidelines must be followed with respect to configuration management, logistics support, reliability, maintainability, life-cycle costing, and others. The RFP must be clear, complete accurate and consistent with the requirements of the procurement so that it provides all offerors with the same understanding of the program. The RFP will usually require that contractor proposals be presented in two packages - cost and technical. Often an outline is given for contractors to follow so that the evaluation process can be simplified later.

There also is an unofficial aspect of the presolicitation phase that is very real and has great impact on later phases of the program: Industry marketing efforts and supplier contact with Government counterparts. The Government very seldomly plans in a vacuum. Aggressive Industry field personnel are in constant contact with Government customers, keeping up with current programs and those planned for the future. Further, Industry is not always in the position of just responding to a given Government need. Quite often, marketing people are successful in creating that need for the Government, and then filling it with their product.

The RFP, therefore, is not just the result of an internal Government team effort. Industry is frequently involved. Occasionally, before the final RFP is drawn up, a draft RFP is circulated to Industry to solicit comments about feasibility and possible improvements in program concepts. This is not a requirement and its use varies from agency to agency. The necessity for a draft RFP would also vary depending on the complexity of the particular program invovled. The presolicitation phase concludes with the writing of a smooth RFP.

(6) Commerce Business Daily

The Commerce Business Daily (CBD) is the Government's official window to the commercial world of contractors. It is published daily (week days) by the Department of Commerce, and announces all proposed Government procurements over $10,000 (with a few exceptions), lists recent contract awards, and advertises for new sources of contractor expertise. Synopses of

Government RFP's are supposed to be published in the CBD ten days before they are distributed to sources on the agency's bidders list. During this ten day period, other contractors can request a copy of the RFP and join in the competition. For purposes of this study then, the last step in the pre-solicitation phase of the source selection process is the publishing of the RFP synopsis in the CBD.

b. Solicitation Phase

Solicitation begins with the distribution of the RFP to known "qualified" sources and to any who specifically request a copy. Usually the period allowed for response is thirty days, with occasional programs permitting up to sixty or ninety days. Thirty, however, is the rule, even for large acquisitions. Sometimes pre-proposal conferences are then scheduled to allow contractors the opportunity to clarify sections of the RFP that they may not fully understand. When held, pre-proposal conferences are usually scheduled for a time shortly after the RFP is mailed. They are not required, however, by DAR.

Occasionally RFP's may be sent out with errors or omissions which require later amendments to the original document. Usually these amendments are made during the solicitation phase as the RFP is scrutinized by many very thorough contractors. The solicitation phase ends on the date established in the RFP for receipt of proposals (unless an extension has been granted).

c. Proposal Evaluation Phase

This phase begins with the receipt of proposals. However, the phase does not have a natural ending as evaluations continue right up to the moment of the award decision. For the purposes of this paper the evaluation phase will cut off at the point where the competitive range is determined.

Little statutory attention is paid to this phase other than to require that proposals be evaluated with regard to the criteria previously published in the RFP. Government evaluation teams are formed to cover each aspect of the cost and technical proposals. The Proposals are then evaluated incrementally by factors and subfactors. Each factor also had a weight assigned to it during the pre-solicitation phase (i.e., 25%, 10%, etc.) which was not disclosed in the RFP. These weights are used at the end of the evaluation phase to determine the final scores of the sum of the evaluated factors.

Technical proposals are usually evaluated with respect to their approach; the organization, personnel, and facilities of the offeror; and, the general quality and responsiveness of the proposal. Cost proposals are supposed to be evaluated for continuity and realism. Usually, however, cost proposals are evaluated by what is on the bottom line - the total cost/price offered. It takes a very unusual contracting officer/source selection authority to override a low proposal. When competition is lacking in a particular acquisition (i.e., sole source) the Government may send a team to the contractor's plant to perform a "should cost" study to verify the contractor's

proposal estimates. This is very time consuming and expensive, however, and not often used.

During this evaluation period all proposals are initially rated as responsive or non-responsive. Certain factors are rated as critical, and a below minimum score on any one factor would disqualify the proposal as non-responsive, regardless of the total score of the other factors. After all the responsive proposals have been fully evaluated by the Government, a "competitive range" is established. The "competitive range" is the area of evaluation acceptability within which proposals must fall to merit subsequent negotiations. DAR 3-805.2 states that:

> The competitive range shall be determined on the basis of price (or cost), technical and other salient factors, and shall include all proposals which have a reasonable chance of being selected for award. When there is doubt as to whether a proposal is within the competitive range, that doubt shall be resolved by including it.

That final sentence is a result of several Comptroller General decisions and has made contracting officers very reluctant to disqualify any proposals. (52:51; 18:60-61)

d. Discussions/Negotiations and Contract Award Phase

This final phase of the source selection process is the heart of the exercise. After the competitive range is established, discussions/negotiations are held with all offerors in the range. These discussions are for the purpose of advising each contractor of the deficiencies in his proposal discovered by the Government in the evaluation phase. The offeror is then allowed the opportunity to correct the deficiencies

and amend his proposal accordingly. A "deficiency" is defined as any part of a proposal which does not satisfy Government requirements. DAR, however, prohibits the disclosure of strengths or weaknesses in one contractor's proposal to another contractor ("technical transfusion"). "Auctioning" is likewise considered unacceptable conduct on the part of the Government. DAR 3-805.3 recognizes a very narrow definition of "auctioning" however:

- "the action of indicating to an offeror a price which must be met to stay in consideration; or
- the action of informing one offeror that his price is too low in relation to another offeror."

On the other hand, DAR allows the Government to tell a contractor that his cost proposal is "too high."

Discussions are brought to a conclusion by the announcement of a common cut-off date for revision of proposals. The proposal revisions submitted are referred to as "best-and-final" offers to the Government. Best-and-finals are not necessarily the end of discussions/negotiations, however. The Government can still make changes in its requirements, i.e., alter the scope of the work desired. These changes can actually be made any time during the source selection process after distribution of the RFP, even right up to the time for contract award. If a change is made, all offerors still in the competition are so advised and given a chance to amend their proposals. This procedure for changes has been used in the past to allow for more than one call for best-and-finals.

After receipt of best-and-final offers (assuming no changes are made to Government requirements) the agency selects

the best contractor, price and other factors considered. The weight given to price/cost is up to the agency involved. DAR 4-106.5 requires that price not be ignored, however. Indeed price/cost is usually the controlling factor, and changes made to best-and-final proposals are seldom in the technical area. Contractors realize the importance of price, regardless of Government disclaimers to the contrary, and submit their best offers accordingly.

After the winning contractor is chosen, the losers are given a debriefing which is designed to inform them of the rationale behind the Government's decision. Through the debriefing procedure, losing contractors are supposed to be given information that could enable them to put together a more competitive effort the next time.

2. Source Selection Problems

The DOD source selection process has received close scrutiny both from within and from without for the last twenty years. Numerous studies have been conducted, articles written, and books published. The first major work in this period was the "Harvard Weapons Acquisition Research Project" in 1962. Many others (though less comprehensive) followed, as the decade of the 1960's initially led by Secretary of Defense Robert McNamara, seemed to be a period of continual change in defense procurement. New contract types were tried (cost-plus-incentive-fee, cost-plus-award-fee, fixed-price-incentive). Different project management schemes waxed and waned in popularity (i.e., Total Package Procurement, Life-Cycle Costing,

and Multi-Year Procurement), and defense spending seemed to be under continual criticism. Major programs experienced cost and schedule overruns, in addition to performance "underruns," the best example being the Air Force "C-5A" project.

All the major acquisition problems of the 1960's were not as a result of an inefficient source selection mechanism, but some certainly were. Subsequently, the RFP was studied extensively by the Aerospace Industries Association (AIA) in 1969. (1) Public Law 91-129 created the Commission on Government Procurement (COGP) in November 1969, to survey the state of all Federal Government procurement policies and procedures and make recommendations for change. The Commission met for over two and a half years before issuing their comprehensive report of findings and recommendations in December 1972. (7) Several of the fifteen "Study Groups" formed by the Commission wrestled specifically with aspects of the source selection process, (8-15) and many of their conclusions will be cited. The President's Blue Ribbon Defense Panel reported out in 1970 with Appendix E dealing directly with the major weapon systems acquisition process. The National Security Industrial Association (NSIA) also published their "Defense Acquisition Study" in 1970 giving an Industry view of the situation. (40) NSIA followed that in 1973 with a study of the Request for Proposal. (43) The RFP also received attention in 1973 from the Defense Management Journal. (19; 38; 59) That same year the Logistics Management Institute (LMI) published a comprehensive study of the "DOD-Contractor Relationship," (35) a large part of which was

directly related to DOD's source selection process. Arming America, by J. Ronald Fox, was published in 1974 but contained few original ideas on DOD source selection. (26) It mainly gathered together many of the papers and articles written previously.

One result of the many articles, studies, and reports was an increase in internal agency policy guidance, (44; 45; 87-89; 93-96) capped by the Office of Management and Budget (OMB) Circular A-109 in January 1976. OMB Circular A-109 provided a single framework for all federal agency "major systems acquisitions." The other references clarified policy specifically on DOD major systems, and the source selection procedures required to implement that DOD policy.

In January 1976, DOD Directive 4105.62 also initiated a test study of a new method of source selection for major programs - "Four-Step". (96) The final report and recommendations of that study were issued in April 1978. (99) Defense Acquisition Circular Number 76-17 actually implemented Four-Step on 1 October 1978. "Four-Step" is a source selection method for negotiated procurements which separates the submission of cost and technical proposals, restricts discussions with offerors to "clarifications," and limits actual contract negotiations to a single contractor. Four-Step was developed in the early 1970's by NASA and subsequently used by the Air Force. Also, in March 1978 the Senate Governmental Affairs Sub-committee reported out S.1264 which contains language in the "Competitive Negotiation" section that would essentially mandate Four-Step procedures for

all federal agencies. (86:135) S.1264 is the Senate bill, coauthored by Senators Chiles and Roth, to reorganize and modernize the Federal Government procurement process and statutes.

A survey was conducted in September 1978 of twenty DOD prime and subcontractors located in the San Francisco Bay Area to supplement the above reference history of DOD source selection problems and studies. Appendix A lists the twenty participants in this survey and all personnel interviewed. Appendix B shows the Questionnaire and structured responses received. Most questions asked for responses of (1) strongly agree, (2) agree, (3) undecided, (4) disagree, (5) strongly disagree. Others were essay type or yes/no. Later in this study, the attitudes and opinions of those Industry contract managers and marketing Vice-Presidents contacted for this sample will be integrated with the reference history cited above.

Source selection problems were not hard to find. Many are not new and have proved relatively immune to previous attempts at eradication. A smooth, efficient, and effective DOD source selection system just does not exist, and never has. A monopsonistic market environment creates unique problems that accentuate statutory and procedural shortfalls. For those companies defined as the "Defense Industry" (prime contractors on major acquisitions), DOD is basically the only buyer among many sellers. They are playing "the only ball game in town." Contractors virtually fight for survival on major projects. For the winning contractor the potential is very great, and for the loser, the penalty is severe. This "all-or-nothing" competition

is a primary distinction between the defense and commercial environments. This pressure often leads to contractor "cost optimism," and subsequent lowering of cost proposals to unrealistic levels in order to win a major contract. The pressure is intense. In 1971 Frederic M. Scherer tried to drive home this point before the Senate Armed Services Committee:

> The main mtoivation, overwhelming everything else, is survival. And in an environment as turbulent as defense-space contracting was during the 1960's, the kinds of behavior required to maximize one's chances of surviving are quite different from, and may in some respects conflict with, close cost control on individual contracts. The sine qua non of survival for major system suppliers is winning new development program awards. It was to this, rather than cost control, that the bulk of top management energies was directed. As the number of new programs dwindled, and as the size of individual programs rose, defense suppliers vied more and more strenuously for the few new programs available. The pressure to go along with unrealistic technical specifications requests of government planners, and indeed to go beyond them, became irresistible. This built-in unrealism in turn led to the numerous performance failures and cost overruns which have now become all too familiar. The best talent in contractor technical organizations was put to work almost continuously participating in source selection competitions of a highly detailed and protracted character, but stopping short of the actual hardware development and testing through which real technical uncertainties must be resolved. (85:142)

Other problems are attributable to the source selection procedures themselves. Procedures required by DAR prohibit "technical transfusion" but encourage "technical leveling." (92:3-805.3(a) and (b)) DAR also prohibits "auctioning" per se, but allows the Government to advise an offeror that his price is considered "too high." (92:3-805.3(c)) DAR discourages "buy-ins" by name, (92:1-311) but actually invites buy-ins by requiring negotiations with all offerors, which leads to technical

leveling, (92:3-805.3(a)) and subsequent calls for "best-and-finals" in a monopsonistic price sensitive atmosphere. (92:3-805.3(d))

Still other problems result from a lack of effective communications between DOD and Industry. The principal culprit is the RFP, its contents and the process of its evolution. That is where the source selection cycle begins, at the "pre-solicitation" phase.

a. Pre-solicitation Phase

Pre-solicitation problems will be addressed within the framework established in the earlier description of the current procedures.

(1) Statement of Work (SOW)

DOD has been criticized repeatedly for failure to consult with Industry in formulating the SOW. Two of NSIA's recommendations in 1970 were:

> The Department of Defense and Industry should consult to the maximum extent possible, and well beyond that currently being accomplished, during the formulation of weapon system concepts and requirements and prior to contractual solicitation, in order to bring greater realism to assessment of state-of-the-art, schedules, costs and attendant risks. (40:12)

> The Department of Defense and Industry should review together work statements and specifications prior to soliciting bids for development and production of hardware, so that technical characteristics and performance criteria defined in requests for proposal on major defense procurements will be practically attainable. (40:29)

In 1973 the National Security Industrial Association (NSIA) repeated that DOD-Contractor dialogue during the requirements phase gives the customer ". . . a better basis for determining what is achievable and what is merely contractor

boasting, the latter motivated more by the competitive environment than confidence that the technical objectives can be met." (43:6)

A negative aspect, however, to early DOD-Contractor dialogue is the very real possibility that performance parameters might become "tailored" to a specific contractor, thereby suppressing innovation and possibly reducing eventual competition. The San Francisco Bay Area firms surveyed overwhelmingly agreed with this contention. The Commission on Government Procurement (COGP) also noted this pitfall and the subsequent possibility for protest to the GAO. (13:404; 15:680) The Commission felt that the benefits to be gained by closer cooperation with Industry did not outweigh the disadvantages. All Bay Area contractors surveyed seemed to have fairly good relations with their customers and expended considerable marketing effort keeping abreast of their customers' future needs. Apparently their marketing efforts produced mixed results though. Several firms complained bitterly about "pre-selection" of others. One electronic test equipment manufacturer commented that sometimes a SOW is written precisely around a competitor's product. That contractor also disclosed that it was his company's policy to restrict the Government percentage of its total sales to only 15%, thus not being dependent on a fickle, non-profit motivated customer. Of course such a procedure is easier to implement if the product being sold has commercial applications, as was the case in that instance. An electronic warfare firm complained that many RFP[illegible]re sent out merely to maintain "the

appearance of competition." A third contractor, in the tape recorder field, asserted that there is a great deal of pre-selection. He did not mind, however, as long as he got his share. Another company, which designs and builds flight simulators for the Defense Department, said that in his area the Government does not have the talent required to write good specifications for a SOW.

Most firms interviewed had negative comments about the quality of specifications written for Government RFP's. Twenty-five percent said that there is always something buried in the specifications that is unrealistic, for instance a peculiar technical requirement that could boost the price of the end product unnecessarily by a factor of ten. An example once given by the President of Boeing Aerospace described an RFP design requirement for a tape transporter capable of operating at -65 degrees farenheit. No tape in existence, however, could hold together below -40 degrees farenheit. (4:25) DOD Directive 4105.62 seemed to acknowledge this problem and requested contractors to give feedback to an issuing agency so that the RFP could be amended before the proposal deadline. Despite the apparent extent of the specification quality problem, several firms stated that once the SOW goes out, the Government acts like it were etched in stone and is very reluctant to issue changes.

(2) Evaluation Criteria

The main problem in this area is that DAR 3-501 (b) prevents the disclosure of numerical weights (assigned to

evaluation factors) in the RFP. Industry has complained as far back as 1962 that knowledge of the factor weights was essential to giving the Government a proper response to the RFP. (24:15) A series of Comptroller General decisions in the 1960's built up a de facto policy which required the Government to tell Industry what the evaluation factors were (even this was not always done), and what their "relative weights" were. (24:16-17) The Industry position was best stated by the NSIA in their 1973 RFP study:

> Also, the panel unanimously agrees that an aid to fully understanding the program objectives would be to inform the contractors of the weightings. The weightings are an indication of the relative importance the customer places on various aspects of the program. Knowledge of the weightings would indicate which part of the proposal deserves the most attention. . . . Hence, in the areas of most importance, the customer is assured of the contractor's best offer. Not disclosing the weightings merely rewards the contractor who is the best guesser or the one that has had the most influence on the requirements or RFP writers; and contractors in this category are not necessarily the best assurance of a lowest risk program. (43:7)

The Government position expressed to Study Group #6 of the COGP was that the disclosure of precise weights would result in proposals being ". . . structured in accord with the Government bias instead of the contractors' own thinking." The proposals are then evaluated, however, in accord with the Government bias, not the contractor's. The Government also declared that the disclosure of weights would ". . . stifle innovations by industry and would cause selection 'gaming'." (8:205) Presumably the Government was saying that its current rules did not invite "gaming." Nonetheless, Study Group #6 recommended the disclosure of weights in the RFP. (8:233) Study Group #12

disagreed, however, and worried that disclosure of weights could lead to a debate as to the "wisdom" of their specific values. (15:683, 717) The "wisdom" of the Study Group #12 logic could also be debated. The Aerospace Industries Association (AIA) study of the RFP in 1969 concluded that weights should be disclosed. (1:3) The Defense Management Journal issue on the RFP in 1973 also recommended disclosure. (38:22) The present language in S.1264, however, will not change the current DAR restriction on disclosure. The Senate committee report on S.1264 asserted that information about the "relative" importance of weights should be sufficient for contractors to adequately respond to an RFP, and that the disclosure of actual numerical weights would permit "gaming." (86:37) To the contrary, the problem with non-disclosure is that it virtually requires "gaming," that is guessing what the Government means when it uses certain descriptive adjectives in relation to evaluation factors. As a Bay Area electronic warfare contractor pointed out, giving the ordinal ranking of four evaluation factors can be very misleading (for example, 1st, 2nd, 3rd, and 4th could be 27%, 26%, 24%, and 23%; or 75%, 10% 8%, and 7%). Recent Comptroller General decisions, however, have reinforced the Government's position of non-disclosure. (73; 76; 80; and 84)

Only one Bay Area contractor interviewed agreed with the Government's policy. A 1978 National Contract Management Journal (NCMJ) article by two Government attorneys sided with the other nineteen contractors in the Industry sample. The NCMJ story concluded that there is no valid reason for the

DAR requirement that prohibits disclosure of numerical weights in the RFP, and that the quality of competition could increase if weights were listed. (24:23) A Bay Area software supplier responded that knowledge of weights would allow him to make a much more intelligent bid/no bid decision before jumping into a program. Two other firms felt that protests would decrease and that the integrity of the source selection process would increase. An electronic warfare company reiterated the NSIA position that their firm would be better able to offer the Government what it really wanted if it knew what importance the Government had attached to its evaluation criteria.

Two other potential evaluation factors which continue to generate controversy are "cost-realism" and "past performance." Cost-realism is the relationship between a contractor's cost proposal and the Government's cost estimate. The closer the two figures, the higher the degree of realism. This factor has been of little interest to Government negotiators over the years; and according to the Bay Area Industry sample, it is still being ignored, despite paragraph III.C.2 in DOD Directive 4105.62. Study Group #12 of the COGP recommended that the importance of cost per se be de-emphasized, with greater value placed on an offeror's cost-realism. (9:715) The NSIA likewise recommended cost-realism be included as a major award factor, with heavy penalties for a low score, even disqualification from further consideration. (43:11) Cost-realism will also be addressed later in the discussion of "buy-ins." A buy-in is defined as a situation where "cost-realism" is subjugated to its

antithesis, "cost-optimism," and an unrealistically low cost proposal is designed to undercut a contractor's competition. Bay Area suppliers heavily favored a decreased Government emphasis on the gross cost factor, especially in the developmental stages of a project.

"Past performance" is a factor which would seem to be a potentially valuable contractor motivation tool. The fact that it is not currently used (even though nominally provided for in paragraph III.D.1 of DOD Directive 4105.62) is puzzling. Most of the Bay Area contractors sampled felt that past performance should be ranked second behind technical capability, and certainly ahead of price. The President of Boeing Aerospace once declared that: "A general feeling runs through our business that the 'hurt' from bad performance is only temporary, and good performance in the past really doesn't help. Now isn't that strange? One's reputation should be a big selling point. In the commercial world, without a good reputation, you don't last long." (4:26) Study Group #12 of the COGP recommended that past performance be used as a factor in evaluations to provide an incentive for more efficient supplier performance in the future. (13:121) The Government experimented with the Contractor Performance Evaluation (CPE) system in the 1960's but abandoned it in 1970 as too cumbersome and not worth the time and effort which had been expended. A new system was proposed recently within the Air Force to try to revive this motivational tool, but no results have yet been published. (39:111-118)

(3) The Request for Proposals (RFP)

According to the Bay Area contractors interviewed, many of the criticisms that have been directed toward the RFP by past studies still exist today. In 1969 the Aerospace Industries Association (AIA) basically concluded that the RFP was not doing an efficient job. It was too long, too unwieldy, too vague, of varying quality, used specifications that were too restrictive or not realistic, and required that contractor responses contain much more detailed data than was actually necessary for the source selection decision. The AIA recommended page limits on both RFP's and contractor proposals, a move designed to force better and more succinct writing by all parties. The AIA urged that all RFP requirements be directly related to the need for selection of the best contractor in the most efficient manner. Innovation and technical approach were advocated as factors which deserved greater emphasis in the RFP. Data requirements which had been characterized as "grossly excessive" and requiring wasteful and costly contractor effort, were recommended to be closely scrutinized by the Government and limited to those actually needed for initial evaluation, not for subsequent negotiations. (1:3)

The President's Blue Ribbon Defense Panel also lamented that contractor proposals were growing too large (i.e., 35,000 pages for the winning "C-5A" package, and 3000-5000 for an average major program (13:398)) and were causing problems for the Government to properly evaluate. (3:App. E, p. 19) A call was sounded to reduce the amount of data required by

Government RFP's. (3:App. E, p. 20) NSIA concurred. (40:28)

Two years later, Study Group #6 of the COGP also acknowledged the Government's insatiable appetite for data that it did not need or use. (8:201) One example was given of a RFP that required a cost breakdown to the ninth level of the "Work Breakdown Structure" (WBS). The AIA had recommended going no further than the third level. (1:3) Study Group #12 agreed with Study Group #6 and said that going too far down in the WBS too early merely wastes contractor effort, because the Government often subsequently changes its requirements during the source selection process anyway, requiring appropriate changes by the contractors in their proposals. (15:687)

The January 1973 issue of the Defense Management Journal was dedicated to the RFP and echoed all earlier findings, conclusions, and recommendations. Seemingly little had changed since the 1969 AIA study. RFP's and proposals were still too big, of questionable quality, poorly organized, and required too much early data (38:17, 19, 22) Page limits again were strongly advised for both RFP's and proposals, with an example given of the Air Force's "Lightweight Fighter" program. (59:14)

The latest RFP study was conducted in 1975 and published in 1977, but again found little real change. (30:31) DOD Directive 4105.62, however was revised in 1976 and instituted several hopeful policy requirements. Agencies are supposed to set up a review board to ensure that all data requirements included in the RFP are essential and not too restrictive

(i.e., "tailored"). Also page limits are now encouraged for both RFP's and proposals.

In September 1978 most Bay Area firms interviewed had seen little change in the RFP's sent to them. Many complained about the difficulty in understanding exactly what the Government wants. An electron tube manufacturer mentioned one RFP that he had received that had 125 pages, only one of which told him what was being solicited. An aviation-related research firm equated reading a Government RFP to wading through a tax code. That company also complained about the endless array of add-ons with which the RFP is burdened:

> One of these days, the Government must stop its psychotic submission to the pressure of special interest groups. It borders on the ridiculous, the way that the size of today's solicitation packages have grown out of proportion because of the addition of so many regulations and restrictive provisions. The Government imposes all too many restrictions upon the contractor, which are designed to force the prime contractor to distribute "the goodies." The contractor is now supposed to be all things to all people, i.e., OSHA, clean air, the handicapped, the veteran, minorities, minority enterprises, small business, women, foreign trade off-sets, buy American, the subcontracting of certain portions of the work, etc.

Excess data was also still a problem. As an armored vehicle supplier pointed out, "data is expensive," to both the contractor and to the Government. Less than one fourth of the Bay Area sample thought that the Government did not ask for too much data. Length of RFP's and proposals were also local issues, but suppliers were not in agreement on the remedies. Less than half thought that page limits should be placed on RFP's, and only slightly over half advocated limits on proposals, even though most of them

concurred that longer proposals lead to longer evaluation periods and to increased costs.

(4) Commerce Business Daily (CBD)

Study Group #6 of the COGP characterized the CBD as helpful for standard items but not much else, that it was basically a nuisance and a waste of time, and that ten days was inadequate notice to potential suppliers. Realistically, if a contractor were to read about an RFP for the first time in CBD, his chances for effective competition were described as nil. (8:177-179) This was reinforced in a 1975 article in the National Contract Management Journal entitled "The Games People Play in Source Selection Competitions." (33:126)

While all Bay Area firms interviewed subscribe to the CBD, they do not rely on it for news of forthcoming RFP's. All companies had extensive sales and marketing organizations directed toward close customer contact, even though the customers were generally 3000 miles away. As described to a National Contract Management Association Washington, D.C. audience, "From an exceedingly practical point of view, the contractor who is not aware of the RFP he may be about to receive has fallen down on the job." (37:69) The sentiments of a Bay Area electronic warfare firm were seconded by almost all of the others: "If you find out first in the CBD, usually you are too late, about two years too late." Some of the Bay Area suppliers said that they mainly use the CBD to measure the effectiveness of their marketing people, i.e., if they

not know about an RFP before it comes out in CBD their marketing division needs a shakeup.

b. Solicitation Phase

The most critical problem in the solicitation phase of the major system source selection process is the typically short turn-around time required by most RFP's, usually thirty days. The quality and quantity of effort expended by contractors in this brief period will chiefly determine the selection of the eventual winner. A secondary solicitation phase problem deals with the pre-proposal conference. As now conducted (it is not required, and only used occasionally) it is not very helpful to the contractors.

(1) Proposal Response Time

Thirty days is rarely enough time to formulate a competitive proposal on a major system acquisition. Mailing time subtracts a week. The contractor's bid/no bid decision must be carefully weighed, proposal team formed, strategy developed, and technical, management, and cost packages written in the remaining few days. The short official response time inhibits more extensive competition. Successful offerors usually are aware of the forthcoming RFP well in advance. Study Group #6 of the COGP described the usual thirty day response time as "inadequate." (8:178) Study Group #12 concurred: "We found evidence of undue compression of time. This occurred in the . . . proposal time allowed. Our interviews indicate that the Government has consistently allowed Industry far too little time to prepare proposals." (15:679)

"In many cases only those companies who have been working on their proposals for several months or more - based on their own estimate of what the RFP may call for - are in a position to respond." (15:705) As a result, competition is discouraged; time and money are wasted by contractors trying to do advance work on less than perfect information; innovation is time-restricted; and the eventual proposals, coordinated within companies at great cost and expenditure of overtime manhours, will have inevitable errors, complicating the Government's evaluation task. In fact, with the present practice in negotiated procurements of advising contractors of all deficiencies in their proposals, much time is lost working out errors initially caused by the rush to submit proposals within the given deadline (15:705) The 1973 Defense Management Journal RFP issue likewise deplored the situation:

> Invariably the process of preparing the RFP is a crash effort and the task of responding is a mountain mover with all competitors running to get in before the door is shut.
>
> We need to question the timing of the RFP events since there is every reason to believe it is not well founded and that the short fuse typical of the RFP-proposal cycle may well contribute to the problems that are associated with the RFP document . . . A good RFP will certainly be judged to be poor if the response time is unrealistically short. (19:11-12)

The recent Bay Area contractor survey underscored all that was described by the COGP and the Defense Management Journal. A chemical propulsion firm responded that the shorter the time frame for proposal submission, the greater the risk that the Government will not get what it wants, or that the best contractor will not win. Their

company "Manager of Contract Management" continued: "The greatest problem in Government solicitations is the time provided for a proper response coupled with the complexity of the solicitation itself." He also commented that even if you know about the RFP in advance, you will not have the actual final requirements until the RFP is issued. Some preliminary work can be done if you know ahead, but there still is not enough time to properly finish the rest of the proposal. Some suppliers acknowledged that they are occasionally successful in getting an extension of time, but not often. This is a crucial phase in the source selection process (unless the winner has indeed been pre-selected). Unfortunately, current Government policy seems to be illogical and contrary to the goal of effective competition.

(2) Pre-Proposal Conference

The reference literature is silent on this area, but it seems to be a Government tool which could be better utilized. According to Bay Area contractors interviewed, as now conducted (when employed), pre-proposal conferences are 99% Government evolutions. Contractors come but are reluctant to ask questions or to volunteer ideas for fear of supplying intelligence to a competitor. People come just to see if anyone else will ask a question. No one often does and the Government does not know if the RFP is actually understood or not. Several companies suggested that individual parties submit written questions anonymously before the meeting and that the Government address them with all present. This in fact is

done by some agencies and helps to clear up areas of contention without giving anyone an edge.

c. Proposal Evaluation Phase

Most Industry complaints about the proposal evaluation phase have traditionally centered around the scoring exercise. Other comments gathered from the Bay Area survey related to plant visits and the overall length of the source selection process once proposals are submitted.

Evaluation has been practiced in many forms. Numerical scoring has been used as an indication of technical results and seems to be very popular today. Narrative descriptions have also been applied, with or without numbers. Another method establishes "go/no-go" minimum thresholds on critical system performance parameters. Most Government agencies use a combination numerical-narrative hybrid method to document the subjective views of their proposal evaluators. (13:414) Use of numerical scoring is often very attractive as the results convey exactitude, even in subjective areas. A dependence on numbers can lead, however, to a false sense of security. When an evaluation team looks at many subfactors in a top-down process, even wide differences in ratings for individual elements (some of which could be critical to performance of the whole system) tend to be submerged or "averaged out" in the process. Reduction in the number of elements scored numerically could focus attention on crucial performance areas. It could give a broader, more visible, perspective to the overall relative technical merits of each of the competing proposals. The President's

Blue Ribbon Defense Panel stated that dependence on numbers creates the risk that good judgment may not be brought to bear, that an inferior contractor may win because his proposal fits the particular scoring method being used. (3:App. E, p. 20) Study Group #12 of the COGP agreed. (13:415) The purpose of source selection should be to select a contractor, not merely to choose between competing proposals. Yet the emphasis in most DOD source selections is overwhelmingly on the evaluation and scoring of technical proposals. The difference between contractors is seldomly illuminated as well as are the scoring differences between their proposals.

Bay Area contractors overwhelmingly agreed that less emphasis should be placed on mathematical equations of numerical assessments and more on judgment of the overall proposal, its critical points, and the reputation and capability of the contractor offering the proposal.

Plant visits were another sensitive area with some suppliers. While most agreed that plant visits should be used to help evaluate management and technical capabilities, one responded frankly that plant visits are usually "just big red carpet jobs" and that the Government gets little chance to judge actual capabilities.

Several companies complained vehemently about the length of the evaluation, negotiations, and award phases. Stories were reported about 18 month and 30 month periods. Two electronics companies (both 100% DOD business) had similar situations where a Government representative had promised

substantial contracts for certain start dates. The firms then leased additional facilities, hired more people, and waited. One company finally got the contract 12 months after his customer told him that he would, and the other was still waiting when he was interviewed 18 months after his promised date. The only contracts which seemed to be immune to long award periods were end-of-the-year work placed with a specific Bay Area research facility. When funds have to be obligated, or else will be returned to the Treasury, DOD can move swiftly in its source selection decisions.

In general, besides delaying the acquisition of systems, longer evaluation periods also lead to higher contractor costs. With inflation at 8-10%, cost proposals cannot remain fixed over two-year periods. During evaluation and negotiations the contractor has to keep his proposal team together to answer Government questions, explain their work, and revise the proposal as required. The longer the team has to stay together, the more it costs the contractor, and eventually the Government in "Bid and Proposal" costs.

d. Discussions/Negotiations and Contract Award Phase

No other phase of the source selection process has been subjected to so much abuse and subsequent analysis as this one. The Government's policy of negotiating essentially with all offerors simultaneously, apparently has been the root of many of the problems suffered by major systems programs in the last fifteen years. The fact that DOD is a "monopsonistic" buyer distorts its bargaining position with Industry and compounds the faults inherent in a policy of negotiations with all

offerors. Candid negotiations are very difficult when conducted in a monopsonistic environment. There is a very real tendency to tell the Government what the contractor thinks that it wants to hear. Study Group #6 of the COGP compared this situation to that of the " . . . largest and richest lady in town asking her suitors if they think that she is getting fat. Only after she has made her selection does she stand a slight chance of getting an honest answer, (whereupon she may regret her choice.)" (8:224)

The Defense Department's leverage is very powerful; either the contractor participates, or he is out of the "game." The Government has continued to pursue a very shortsighted policy in this "game," and as a result has experienced serious program cost overruns, schedule delays, and performance failures. Contractor opinions on this "game" have usually run along the following lines:

> We won the competition but they won the contract.
>
> They knew who they wanted and made it come out that way.
>
> We could win a protest but our management doesn't want our customers mad at us.
>
> There was a Chinese Auction in the best and final and they lied enough to win it.
>
> This is the only game in town and we must promise anything to win it.
>
> Promise them anything but be sure you get a CPFF contract. (33:121)

An address by the President of Sterling Institute to the NCMA, Washington, D.C. chapter in 1973 concurred:

All kinds of rigorous exercises are practiced, and earnestly so, by contractors who feel that the system, as identified, does not produce an equality among competitors, but has to be massaged and shaped if one would win.

- cleverness is basic to winning.
- contract capture rates are, by and large, the function of an inside track.
- do unto others before they do unto you.
- regardless of what the RFP may say about award based on technical competency, if you are not good and low in price at the same time, you can forget it!
- exhortations concerning technical competency determinations notwithstanding, it takes a lot of guts to chuck out a low bidder whom the contracting officer knows is hungry and needs the work. (37)

In discussions with Bay Area contractors gamesmanship was mentioned often, and usually in a derogatory manner.

Simultaneous negotiations with all offerors, then, has led to technical leveling, technical transfusion, auctioning, and buy-ins. (86:39) The first three are direct Government actions toward contractors; the last is a contractor action, but usually Government-induced.

(1) Technical Leveling

Technical leveling results from discussions held by the Government with all offerors to identify deficiencies in their proposals. (8:219; 33:123) "Deficiency" is a relative concept, however. To Government negotiators, a "deficiency" is any aspect of an offeror's proposal which is not fully responsive to Government requirements. Deficiencies are identified by the Government and then corrected by the offeror by making revisions to his proposal. Technical leveling tends to minimize innovation and obscure differences in technical approach of the various competitors by guiding all

offerors toward the Government's pre-determined design specifications. Technical leveling allows weaker contractors to remain in competition by helping to upgrade their proposals. It also encourages hasty changes in all proposals which may have subsequent negative impacts not foreseeable at the time of the revisions.

As proposals become leveled out and their technical differences narrowed, one other factor takes on greater and greater importance - cost. Study Group #12 of the COGP discussed this and concluded that technical leveling leads to price "shaving" because cost/price is eventually the principal visible distinguishing factor. (13:437)

GAO has rendered several recent decisions which have acknowledged technical leveling as legitimate. In Telecommunications Management Corporation negotiations were held with two offerors. The evaluation committee concluded that either firm could adequately accomplish the project. In such situations GAO said that ". . . cost becomes the determinative factor. Such determination does not mean that there was a change in the specified evaluation criteria, but merely that the stated technical criteria failed to act as a discriminator between the two proposals, and thus price became the deciding factor." (83) In Dynalectron Corporation the evaluation board changed requirements during the course of negotiations so that all six offerors in the competitive range were judged fully qualified to perform the required work. The award was then made on the basis of lowest offered cost. (74) In Charter Medical Services, Inc.

GAO ruled that price should not become the determinative factor for award where the RFP indicates that it is of minor importance unless competing proposals are "essentially equal" technically. (78) In Bunker Ramo Corporation after the Navy finished its negotiations and technical evaluation of proposals no offeror in the competitive range had a "decided technical advantage" over any other offeror. The Navy then concluded that price was the determinative factor, even though technical had been assigned 90% of the award formula weight and price only 10%. GAO concluded that:

> Once the proposals were viewed as essentially equal technically, it was incumbent on the contracting officer to consider cost . . . This does not mean that the evaluation criteria were changed or ignored. In any case where cost is designated as a relatively unimportant evaluation factor, it may nevertheless become a determinative factor when application of the other, more important factors do not, in the good faith judgments of source selection officials, clearly delineate a proposal which would be most advantageous to the Government to accept. (75)

Bay Area contractors acknowledged that leveling occurs and bitterly complained about the resultant price competition. Several reported that officially performance is always ranked first in the RFP, but when it comes down to the selection, price is the difference. Only one firm interviewed did not mind leveling, but it was insulated by a well-known brand image for high quality and seldom changed its initial proposals anyway. That company was in a position to tell the Government to take it or leave it. Others were resigned to leveling as being one of the requirements of playing the game. One stated that even if procedures were changed, some contractors would still get information leaked from sympathetic

customers, usually people in the technical section. As a result, it seemed that all companies had very aggressive intelligence operations designed to stay competitive in a less than ideal business environment.

(2) Technical Transfusion

Technical transfusion used to be part of DOD's source selection operating procedures, but is now prohibited by DAR 3-805.3(b). Study Group #12 of the COGP found transfusion common among source selections of the 1960's. (15:707) The Government imposed transfusion on the prime contractors, and the primes did it to the subcontractors. Study Group #12 also heard Industry testify that they withheld their best ideas until the very end of negotiations to avoid having them given to another offeror. In 1972 GAO ruled that: "Obviously, disclosure to other proposers of one proposer's innovative or ingenious solution is unfair. We agree that such 'transfusion' should be avoided." (67:622) By 1975, according to a National Contract Management Journal article, technical transfusion had disappeared. The 1978 Senate committee report on S.1264 disagreed, however, and laid the blame for current transfusion on the Government practice of negotiating with all offerors. (86:39) Several Bay Area firms backed up the S.1264 committee report. Some said that they had been on both ends of transfusion, but would rather that it be stopped completely. Most had high marks for the integrity of Government procurement officials, but low opinions of many end-user agency technical personnel who consistently leak information to their suppliers.

(3) Auctioning

Like technical transfusion, auctioning per se is prohibited by DAR. Also like technical transfusion, de facto auctioning continues. Again, the root cause is traced back to the requirement for discussions/negotiations with all offerors. Study Group #6 of the COGP found in its hearings that discussions had an undesirable influence on the area of price negotiations. Successive rounds of discussions as held by DOD were reported to lead inevitably to price auctions. In Study Group #12 hearings, simultaneous negotiations were characterized as an "excessive use of the Government's bargaining power," and "auctioning." As with technical transfusion, while prime contractors complained about the Government auctioning, subcontractors complained about the primes doing the same with them. (15:717) Bay Area subcontractors echoed similar sentiments. One said, "It is an outright blatant auction, nothing less." Most Bay Area prime contractors admitted conducting "highly competitive price negotiations" between their suppliers. The degree of high-handed treatment by a prime seemed to be a function of his size. The larger he was, the less delicately he treated his subs.

GAO has held auctioning to be illegal, but on the other hand has sanctioned multiple "best-and-finals." In Neomed, Inc. the low offeror had been identified by the Government contracting officer to be a competitor. The GAO said that this amounted to an auction technique and was strictly prohibited by DAR 3-805.3. (70; 71) This also happened to a Bay Area communications firm. On a highly complex project with

considerable uncertainty, the only other competitor came in with a best-and-final 5% under that of the company interviewed. According to the company President, there was no way that could have happened unless his offer had been "leaked" to the other contractor. In Rockwell International Corporation the GAO specifically stated that they did not think that a second round of best-and-finals constituted an unacceptable use of auction techniques. GAO likewise upheld an agency's call for a second round of best-and-finals in both Westpac Product Company and Bunker Ramo Corporation. (72; 75; 77)

Regardless of what DAR and GAO say, most Bay Area contractors charged that they are auctioned continually and that they do not like it. Most complain about the best and final offer concept. A semi-conductor company deplored multiple cycles of best-and-finals, but did not mind just one round. An electronic warfare research company said that it was ". . . a real pain to give a best-and-final and then be asked for another." Other firms did not even agree with one best-and-final. Most felt that they all negotiate in good faith and then at the end the Government will respond "Alright, what is really your best offer?," or "Okay, now who wants this contract the most?" A chemical propulsion contractor declared: "Return to negotiations and get off the best-and-final kick!" The quality brand name company, however, said that they never change their proposal for a best-and-final, or even for a second best-and-final. An electron tube supplier thought that the best-and-final was basically a scare tactic aimed at the company who has to have the business. A computer software firm "Contracts Manager"

said "Get rid of it! Don't go through all the b--- s--- of negotiating, then auction at the end." Other contractors just saw the best-and-final as one more game to play, and another factor to take into account for a company's overall competitive strategy (i.e. the best offer is never given until best-and-finals are called). The Vice-President and General Manager of GTE-Sylvania remarked at the 1977 NSIA Navy Acquisition Symposium that:

> . . . bidders are required to submit best and final offers which frequently result in an auction. Let's face it, bidders usually know clearly the amount of funds the Navy has for a specific job. And that we won't be candid with the Navy and give our real assessment of the risks existing and cost schedules and off-time performance. As a result, competition tends to hinge on which bidder can most creditably mask the true likely realities of the acquisition outcome, and the real auction becomes one of auctioning away the confrontation of reality by industry and the government alike. (41:127)

(4) Buying-In

DAR 1-311:

> "Buying-in" refers to the practice of attempting in procurement involving price competition to obtain a contract award by knowingly offering a price less than anticipated costs with the expectation of either (i) increasing the contract price during the period of performance through change orders or other means, or (ii) receiving future "follow-on" contracts at prices high enough to recover any losses on the original "buy-in" contract. Such a practice is not favored by the Department of Defense since its long-term effects may diminish competition and it may result in poor contract performance. Where there is reason to believe that "buying-in" has occurred, contracting officers shall assure that amounts thereby excluded in the development of the original contract price are not recovered in the pricing of change orders or of follow-on procurements subject to cost analysis.

DAR, then, does not "prohibit" buy-ins. They are "not favored," but allowed. GAO has upheld the validity of buy-ins on several occasions. In the mid-1960's GAO issued

the following decisions:

> The third basis for your protest is that Emerson by submitting "an unreasonably low bid" has violated the prohibition against "buying-in" as set forth in ASPR 1-311. You state that the Department of Defense has recognized that it is undesirable from the Government's standpoint to permit the practice of buying-in by bidding an unreasonably low price with the knowledge that losses may be incurred in the performance of the contract, but with the intention of recouping such losses on follow-on procurements; that in most situations, the effect of "buying-in," while undesirable to the Government, does not approach the seriousness of such a practice in this particular procurement; that performance of a contract such as this one demands a large, experienced staff with unique skills and abilities; that neither Jeppesen nor any other organization could hope to maintain such a staff after termination of the contract; and it could not reasonably expect to reestablish such a staff once the organization is disbanded.
>
> You contend that the net result of permitting "buying-in" in this particular instance would be to destroy the capabilities which Jeppesen has furnished the Government during the past years, and to replace them with a new and novice organization. It is reported that Emerson's bid price is only 9 percent lower than your firm's bid price and that there is approximately a 3 percent difference between Emerson's bid price and the bid price of the next low bidder, M & T Company. In his report the contracting officer states that he considers these prices to be highly competitive rather than an attempt to buy in by Emerson.
>
> We are of the opinion that the prices received on this procurement are competitive. Even assuming that Emerson is attempting to "buy in," it is noted that ASPR 1-311 does not provide for the rejection of a bid for such a violation. Rather, it provides that where there is reason to believe that "buying in" has occurred, it shall be the duty of the contracting officer to insure that any amounts possibly excluded in the original contract price are not recovered in the pricing of change orders or of follow-on procurements subject to cost analysis. In view of the foregoing, we see no basis for concluding that Emerson's bid should be rejected because of the alleged attempted "buying-in." (64)

In a separate case GAO concluded:

> With reference to your contention that the contract cannot be fulfilled by Newsom at the price quoted, you are advised that even where a mistake has been alleged, this Office has consistently held that a contractor may not be relieved of its obligation under an otherwise valid bid for the sole reason that performance will entail a loss by the contractor. In the present case there is no

> allegation of mistake and the bid price has been verified as correct. Additionally para. 1-311 of ASPR, titled "Buying In," recognizes that bids are sometimes knowingly submitted to a price lower than anticipated costs, but provides merely that "Where there is reason to believe that 'buying in' has occurred . . ." (66)

In a more recent 1977 decision GAO again sustained the Government's policy permitting buy-ins. The GAO ruled in Sencor that the contract award was proper even though the lowest cost proposal may have been "unrealistic." The RFP had been issued by the Navy for a one-year level-of-effort, cost-plus-fixed-fee (CPFF) contract to provide services and data systems analysis. After receipt of best-and-final offers, the Navy concluded that the three offerors had submitted technical proposals which were essentially equal. Therefore, even though the RFP established technical and management considerations as the most important evaluation factors, with cost as the least important, the Navy awarded the contract to Techplan Corporation on the basis of the lowest proposed cost. The second low offeror challenged the award, alleging that Techplan's proposed cost was not realistic. Since all technical proposals were found to be essentially equal, GAO held that price or cost properly should become the determinative factor in making the award: "Once a procuring agency determines a particular point spread in technical scores does not indicate the technical superiority of any one proposal, it is apparent that the technical evaluation criteria, no matter how heavily weighted vis-a-vis price, do not provide a meaningful basis for selection of a contractor." Also the GAO commented that just because Techplan's estimate was "well below the Govern-

ment estimate" it does not mandate a finding of unreasonableness, especially since all four of the best-and-final offers were below the Government's estimate. (81)

The contractor "cost optimism" which typically characterizes a buy-in is promoted by Government procedures and attitudes, but it is also a direct function of the amount of competition present, and of how badly a contractor needs the business. Penalties for "cost optimism" have seldomly been severe, and rewards for "cost realism" have seldomly been adopted.

In an interesting twist, the Peck and Scherer Harvard Weapons Acquisition Research study accused DOD of "buying-in" with Congress, i.e., getting a project started with an unrealistically low cost estimate, the "foot-in-the-door" strategy. Thus DOD has encouraged buy-ins ("cost optimism") to get "pet" military projects approved that might not otherwise have been. (23:3; 48:412; 104:56) Study Group #12 of the COGP found similar circumstances ten years after Peck and Scherer. (15:724) Peck and Scherer's answer to buy-ins was "Total Package Procurement" (TPP), thus a contractor would be locked into costs for the whole program and could not "get well" on the changes. TPP, however, only seemed to make a bad situation worse. It was eventually realized that the high degree of uncertainty associated with most DOD major weapons system development projects precluded the kind of accurate predictions of probable program costs necessary to lock a contractor into a TPP life cycle.

As contended earlier, the Government policy of simultaneous negotiations with all offerors in a monopsonistic environment leads to technical leveling, technical transfusion, and auctioning, with all of the above then culminating in Industry buy-ins. (3:App. E, p. 2; 13:426, 437; 40:4; 86:37; 104:56) Buy-ins in turn, have led to program cost overruns, schedule delays, performance failures, and considerable political difficulty. (48:43) Some buy-ins, however, do not necessarily result in real trouble. Companies can buy-in to get into a new area to make themselves subsequently more competitive or to do research and development that may have later commercial applications. In these cases of de facto cost-sharing, the contractors make a corporate decision to accept the costs of the low bid internally. Their motives are different from those suppliers who buy-in with the full intention of making up their losses at the Government's expense at some future date.

The Bay Area contractor survey found buy-ins were the order of the day. A rocket motor developer related a case where he bid $1,000,000 and the winner bid $800,000. The eventual project cost, however, mushroomed to $1,500,000. A marine turbine/reduction gear supplier detailed another situation where a "less capable" company had bought-in on a big contract and had delivered a poor quality product. The Defense Department then came back and requested the Bay Area supplier to step in and refit the equipment. The Bay Area firm was somewhat amused and commented wryly that they "did not lose any money" on the rework. Several firms hesitated to answer specific questions on buy-ins, but of the thirteen who did,

eleven said that they had lost contracts to other contractors who bought-in, and five admitted to buying-in themselves. Most characterized buy-ins as prevalent because Government contracting officers are afraid to award contracts to other than the low offeror, and to the fact that there were no penalties for unrealistic bids. This had been acknowledged in a 1977 article by the President of Boeing Aerospace who also admitted to buying-in "on occasion." (4:26) One Bay Area contractor who declined to answer specifically whether he had ever bought in or not charged that buy-ins were "too numerous to mention." An electronic warfare firm complained that everytime, the final source selection decision comes down to money/cost/price, even if the winning offer is unrealistic and other factors had been previously rated higher in the RFP. Another summed up the general feeling that:

> The Government must reevaluate its regulations which dictate to its procurement agencies the all important need for competition. Competition is great if it is obtained realistically. All too often the development of competition is so uppermost in the Procurement Officer's mind that he is oblivious to the fact that his new-found competitive source may be buying in and may not be as efficient as the old tried and proven sources.

D. RESEARCH QUESTION

What effect will the Four-Step method have on past source selection system weaknesses such as inadequate RFP's, technical leveling, technical transfusion, auctioning, and buy-ins? Will it help alleviate them, or will it exaggerate them? Will it create new problems?

E. ORGANIZATION OF THE STUDY

Chapter II details the methodology used for background research and for conducting the San Francisco Bay Area contractor survey. Chapter III outlines the history of Four-Step, including recommendations made by the Commission on Government Procurement and the two-year DOD test study, together with its results. The wording of the proposed Four-Step DAR revision is presented, followed by a compilation of Industry analyses of Four-Step weaknesses. Chapter IV is the author's analysis of the strengths and weaknesses of the main points of the Four-Step method. Chapter V is a "potpourri" of ideas about Government-Industry relations in general, gathered from the Bay Area contractor survey. To conclude, Chapter VI summarizes the most critical source selection problems, draws conclusions about the impact which Four-Step will likely have on them, and makes recommendations for changes in the new DAR wording of Four-Step.

II. RESEARCH METHODOLOGY

This study consisted mainly of a literature review and an Industry survey. The survey of Government contractors utilized a structured questionnaire, combined with in-person interviews of company officials familiar with Government acquisition procedures.

A. LITERATURE REVIEW

The literature review began with a Defense Logistic Studies Information Exchange (DLSIE) search of related Defense-sponsored papers. It widened with an in depth examination of the various separate Study Group reports of the Commission on Government Procurement (the actual official four volume "Report of the Commission on Government Procurement" was not nearly as helpful as the individiual Study Group reports). Past history was subsequently explored in the Harvard Weapons Acquisition Research Study, the NSIA Defense Acquisition Study, the AIA Air Force RFP study, the "Report of the President's Blue Ribbon Defense Panel," and miscellaneous GAO decisions. Especially valuable were numerous articles published in the Defense Management Journal, the National Contract Management Journal, the National Contract Management Association Newsletter, proceedings from various annual Sterling Institute "Defense Procurement Executive Seminars," and papers presented at several recent annual Department of Defense sponsored "Acquisition Research Symposiums." The latter sources proved to be very rich in both innovative

new ideas and historical chronicles of past experiences. Information on current procedures and proposed changes was drawn from the Defense Acquisition Regulations (DAR), various texts, and the Government Prime Contracts and Subcontracts Service, volumes I-IV, with the accompanying semi-monthly supplements printed by Procurement Associates.

B. INDUSTRY SURVEY

A survey was made of twenty San Francisco Bay Area Government contractors to gather current Industry views on Government source selection procedures and problems. A wide range of experiences was sought so that answers would not have a predetermined look of artificial concensus. Small ($5 million-$15 million annual Government sales), medium ($15 million-$50 million), and large (those appearing on the list of the "Top 100 Defense Department Contractors for 1977") contractors participated. With such a range of respondents all were not actually involved in "major weapons systems" acquisitions as strictly defined by the DOD dollar threshold. Most of those sampled, however, were primarily involved in negotiated procurements (90%-100% of their Government contracts were negotiated), with many in the "$10 million+" category. Preliminary interviews were done over the telephone. Those were followed up by questionnaires mailed to the participants, and then by a one to two hour in-person interview at the contractors' plants.

1. Questionnaire

An eight page questionnaire (Appendix B) was developed to obtain sales, purchasing, and Government contract data on

the companies surveyed, experience information on the actual personnel responding, and professional views of both marketing and contract managers regarding present Government source selection procedures, past source selection problems, and future changes in Government-Industry relationships which will be required by S.1264 and the Four-Step method.

2. Interview

Preliminary half-hour interviews were accomplished by telephone to set the stage for the questionnaires and later in-person discussions. The subsequent one to two hour in-person interviews reviewed material on the questionnaire to make sure that each respondent fully understood all questions as they were intended. The interviews then proceeded to expand on whatever area the contractor was most anxious about, on the most pressing problems as he saw them. Several interesting remarks were noted on subjects not directly related to source selection. They have been presented in Chapter V to be of possible benefit for generating ideas for future studies of Government acquisition issues. Finally, all contractors were assured that their responses would be held in confidence and only referred to in an anonymous manner, not identified to specific companies.

C. LIMITATIONS OF THE STUDY

Due to the small size of the sample (20), and even smaller size of the actual questionnaire responses (15), the data generated by answers to the questionnaire was not intended to be statistically significant. Also by design, answers solicited were perceptions and opinions of each of the participants, not

necessarily official company-approved policy statements. Nonetheless, the ideas and experiences gathered from the interviews and several of the essay-type questions were very valuable and enlightening. Finally, the study was limited to contractors in the San Francisco Bay Area because of proximity to the Naval Postgraduate School in Monterey.

While considerable effort was expended on the Bay Area contractor survey, no time was allotted to contact Defense Department personnel familiar with source selection procedures. While this must be recognized as a limitation, it was pre-designed. The conclusions of the study then represent the independent thought of the author, without pressure or influence from official Department of Defense policy makers.

III. DEVELOPMENT OF FOUR-STEP SOURCE SELECTION

A. NASA EXPERIMENTATION

In the late 1960's, in response to Industry critics of Government negotiated procurement source selection procedures for Research and Development, NASA, working with the Jet Propulsion Laboratory, developed a uniquely different approach. This was first written into official procedures as NASA Procurement Regulation Directive 70-15 of December 1, 1970, and was designed to steer away from past "auctions." (8:220-221) The new NASA procedures replaced discussion/identification of "deficiencies" with "clarifications of offerors' proposals. "Clarifications" referred to Government efforts to ensure that (1) each contractor understood the requirements of the solicitation, and that (2) the Government understood what each contractor was offering in his proposal. "Clarifications" were not to disclose what the Government perceived as "deficiencies" in the offeror's proposal. Elimination of Technical Leveling and transfusion were also goals of this new procedure. Actual "negotiations" were to be conducted only with the contractor whose proposal was judged most desirable after initial clarifications.

B. COMMISSION ON GOVERNMENT PROCUREMENT EVALUATION OF NASA PROCEDURES

This new method of source selection was first evaluated independently by the COGP. Study Group #6 heard Industry representatives call for source selection decisions to be made, and contracts negotiated, on the basis of the best proposal, with

only the winning contractor. (8:225) Industry further claimed that the Government could always break off negotiations and start with another firm if a stalemate developed. (8:226) Study Group #6 concluded, however, that no single method would be appropriate for all situations and that the Government Contracting Officer should select the procedure that best fits his particular circumstances. (8:232) It was recommended that the requirement for discussions with all in the competitive range be deleted from the Armed Services Procurement Act. Study Group #12 recommended that for major system source selections, discussions be limited to "clarification of proposals rather than elimination of deficiencies." (13:441) They believed that ". . . while competitive optimism could not be eliminated, it would be guarded against . . ." and that ". . . the excesses of optimism are inevitably generated by multiple negotiations." Study Group #12 dismissed arguments concerning possible difficulties in negotiating only with a single contractor at the end as inconsequential. It pointed to the fact that the Government enters into a great number of sole source negotiations every year with few unusual problems. (13:442-445) In other actions supporting the new NASA procedures, Study Group #12 recommended that the source selection evaluation be made essentially on the basis of proposals as submitted, encouraging innovation, (15:709) and that detailed cost data for negotiations be required only of the selected source. (15:715) They added another twist to the NASA procedures by recommending that technical and cost proposals be separated by a period of

time, say 30 days. This would allow additional effort to be directed toward each evolution. (15:682, 695, 707, 715) The Aerospace Industries Association (AIA) also endorsed NASA's procedures. (15:725)

C. GAO EVALUATION OF NASA PROCEDURES

The endorsement which was most critical to the NASA procedures came on March 31, 1972 when GAO upheld their concept of "meaningful discussions" as being limited to discussions of proposal clarifications, vice proposal deficiencies. Basically, Pratt & Whitney contended that they had lost the contract because "meaningful discussions" were not held. It was their opinion that if their "deficiencies" had been identified to them by the Government, that they could have corrected their proposal and won. GAO declared that:

> The many decisions cited by the parties to this protest, as well as others dealing with the matter of "discussions," were not decided in a vacuum or intended to be merely abstract statements of law. . . . In recognition of these facts, we have not construed the requirement for "written or oral discussions" as an inflexible, stereotyped mandate unrelated to the particular procurement involved. Thus, in many cases we have found that deficiencies had to be pointed out in order to have meaningful discussions. On the other hand, in other cases, the facts and circumstances called for a different conclusion. . . . Obviously, disclosure to other proposers of one proposer's innovative or ingenious solution to a problem is unfair. We agree that such "transfusion" should be avoided. It is also unfair, we think, to help one proposer through successive rounds of discussions to bring his original inadequate proposal up to the level of other adequate proposals by pointing out those weaknesses which were the result of his own lack of diligence, competence, or inventiveness in preparing his proposal. (79:1000)

In response to Pratt and Whitney's contention that "meaningful discussions" were not held because deficiencies were not pointed out, GAO emphasized that ". . ., there were, in

fact, extensive written and oral discussions, some of which related to areas later judged weak, although they were framed in the context of clarifications." (67:623) GAO concluded that:

> Therefore, it is our view that whether the statutory requirement for discussions must include the pointing out of deficiencies, and the extent thereof, is a matter of judgment primarily for determination by the procuring agency in light of all the circumstances of the particular procurement and the requirement for competitive negotiations, and that such determination is not subject to question by our Office unless clearly arbitrary or without a reasonable basis. . . . In view of the foregoing, as more fully set forth in the decision, we are unable to conclude that the negotiations did not comport with the statutory mandate for "written or oral discussions." (79:1001;2:623)

In 1974 GAO decided two more cases protesting NASA's lack of "meaningful discussions." In each, GAO upheld its 1972 ruling that discussions of "weaknesses" inevitably lead to technical leveling and transfusion, (68:5) and that pointing out deficiencies unfairly compromises the competitive process by leveling the "technical disparities" between the weak and the strong competitors. (69:411)

D. DOD TWO YEAR TEST STUDY

DOD, meanwhile was evidently watching the NASA procedural developments with anticipation and interest. On October 29, 1975, the Deputy Assistant Secretary of Defense (Procurement) issued a memorandum outlining a forthcoming service-wide test of DOD's application of the NASA source selection procedures, which DOD now called "Four-Step." The two year test would gather information to evaluate and assess the effectiveness of Four-Step. Subsequently on January 6, 1976, DOD Directive

4105.62 formalized the test which utilized the following procedures:

> In step 1, separate technical proposals are first solicited and evaluated with limited discussions held with all offerors. These limited discussions are basically for the purpose of understanding and clarification and are restricted to proposal meaning, substantiation of technical approach, solution, or further clarification of the solicitation. Technical deficiencies clearly relating to an offeror's judgment, or his lack of competence or inventiveness in preparing his proposals are not disclosed. Cost estimates which illustrate the impact of tradeoffs upon projected production and operating and support costs are required. Fully substantiated cost information pertaining to performance of the contemplated contract effort is required in the cost proposal described in step 2.
>
> In step 2, following the technical analysis, and discussions, a cost/price proposal is obtained from each offeror together with any necessary revisions to update technical proposals, based upon the limited technical discussions in step 1. Subsequent to the receipt of the cost/price proposals and any technical revisions made as a result of these limited discussions, a competitive range is then established. Those proposals outside of the competitive range at this point may be eliminated and the offerors so notified. Meaningful cost/price discussions are then held with the remaining offerors but are limited to cost realism, correlation of cost with technical, correction of mathematical errors of that required to have a complete understanding of what is being offered. The burden of proof for cost credibility rests with each offeror and supporting data must provide traceability to the causative technical, business or financial conditions that brought about a change. In order to help identify "Buy-ins," lump sum reductions in cost/price are not accepted without full and complete supporting rationale. Following such discussions, a proposal may be eliminated from further consideration and offerors so notified where the proposal was initially included in the competitive range because it might have been susceptible of being made acceptable, or because there was doubt whether it was in the competitive range and discussions relating to ambiguities and omissions made clear that the proposal should not have been included in the competitive range initially.
>
> In step 3, a common cutoff date for the receipt of final revisions to technical and cost/price submittals is then established and the remaining offerors so notified. Repeated calls for best and final offers without substantive changes in requirements are strictly prohibited to prevent auctioning.

> After receipt of any revised submittals, the proposals are evaluated based upon the offeror's total proposal and a single contractor selected for negotiation of the contract. The selected offeror's proposal must satisfy the Government's minimum requirements. In order to release proposal teams at the earliest practical date, all offerors are notified of the contractor selected.
>
> In step 4, a definitive contract is then negotiated with the selected offeror and contract award accomplished. These negotiations must be completed in a timely manner and must not involve material changes in the Government's requirements or the contractor's proposal which affect the basis for source selection. In the event a definitive contract cannot be consummated on a timely basis, negotiations may be terminated and a new source selection decision made. Upon request, formal debriefings are provided to unsuccessful offerors after contract award. (99:I-10/11)

DOD wanted to ascertain for itself if Four-Step could eliminate technical leveling, technical transfusion, auctioning, and buy-ins, and ultimately select the contractor who is expected to do the best overall job. (89:3-122 to 3-126) As planned, the test would involve six Four-Step programs from each service and an identical number of control programs run on existing procedures. Input on results would come from all of the participants - each of the DOD services and Industry - plus an analysis from the Council of Defense and Space Industry Associations (CODSIA) representing non-participants who were nonetheless interested in DOD's move toward Four-Step.

In the Spring 1977 issue of the Program Manager's Newsletter, the President of Boeing Aerospace reported his company's experiences with DOD's Four-Step test. Boeing had been involved in four programs where they won one, lost two, and chose not to bid on a fourth. As might be expected, their views were mixed. In one losing project.

> . . . the government team proceeded to detail where it thought the Boeing costs were out of line. I'll let you decide for yourself if there was any auctioneering. The team looked at us across the table and said our price for this was "substantially high," in another area it was "significantly high," in another "very high," in another "very, very high." It also told us which issues were controversial. I've been to cattle auctions that were more subtle than that. (4:30)

Boeing did think that the military evaluators were very careful, though, not to allow any technical leveling, which was one of the principal aims of Four-Step.

In June 1977 the DOD Four-Step test was outlined at the 6th Annual DOD Procurement Research Symposium by the Chairman of the Test's Evaluation Group, Lt. Col. Douglas C. Dillon. He detailed the four areas which DOD was principally concerned with and their evaluation criteria: (100:239)

1. Improve Source Selection
   a. time
   b. solicitation quality
   c. proposal quality
   d. personnel utilization
   e. sole source/multiple negotiation
   f. protest activity

2. Technical Leveling
   a. deficiency discussions
   b. multiple scoring
   c. repetitive scoring
   d. RFP amendments

3. Auctioning
   a. best and final offers
   b. HPA waivers

4. Buy-Ins
   a. cost estimates
   b. proposal reductions
   c. proposal increases

The next month the "Interim Report of the Four-Step Test Study" was released. On the issue of separate submission of technical and cost proposals (Steps 1 and 2), 78% of Industry

was supportive, but only 50% of DOD. On Step 4, the negotiations with only one contractor, roles were reversed. Only 56% of Industry was in favor of that, as opposed to 87% of DOD. DOD said that it had experienced no difficulties in its negotiations with just the winning contractor. Both Government and Industry seemed to favor a change in procedures to allow earlier elimination of offerors whose technical proposals were "clearly unacceptable," (i.e., before submission of cost proposals). (98:7) At the time of the Interim Report (July 31, 1977) protests had been submitted on two awards, but GAO had not yet rendered decisions. In summary, the Interim Report showed that 25% of DOD and 66% of Industry generally favored adoption of Four-Step for Research and Development projects; that 50% of DOD and 12% of Industry would rather see Four-Step implemented as only an optional procedure, not mandatory; that 12.5% of DOD and 22% of Industry favored some combination or hybrid, of the old and the new; and that 12.5% of DOD and 0% of Industry wanted to keep things just as they had been before.

On September 27, 1977, GAO handed down its first decision on a DOD Four-Step test program protest - Air Research Manufacturing Company of Arizona. Since the DOD Four-Step procedures were almost identical with the NASA procedures, GAO used its 1972 Pratt and Whitney decision as precedent. GAO summarized and concluded:

> The procurement involved here contains similar facts to the circumstances in B-173677, supra, namely: (1) both procurements were for research and development; (2) independent technical approaches to be substantiated by extensive

> data were sought; (3) discussions were in fact conducted although they did not include the pointing out of deficiencies as such; and (4) many of the protester's weaknesses resulted from failure to submit backup data and were only weaknesses in relation to the contents of other superior proposals. Reviewing the areas of weaknesses and deficiencies, we cannot conclude that the failure to probe the areas resulted in a failure to comply with the statutory mandate for discussions. Specifically, we cannot fault the position implicit in the Army's report that discussions in the areas might have led to an improper "leveling" of the merit of technical proposals, especially insofar as relates to design criticisms, which are clearly within the realm of an offeror's "competence, diligence, engineering and scientific judgment." (79:1002)

Shortly thereafter, on November 30, 1977, GAO again validated DOD Four-Step procedures in light of its earlier decisions in GTE-Sylvania, Inc. (82)

At the National Security Industrial Association (NSIA) sponsored Navy Systems Acquisition Symposium, on 27-28 October 1977, the Vice President and General Manager of GTE-Sylvania (Communication Systems Division), Mr. Richard Fidler, criticized Navy (ASPR) source selection procedures. He complained that they frequently culminated in auctioning, and that GTE-Sylvania's experience with the DOD Four-Step test study had not been encouraging. Mr. Fidler was especially disappointed that communications between DOD and Industry had been severely restricted, at least in the test programs. He indicated that better communications were needed, especially in the pre-solicitation phase, if Four-Step would ever succeed. (41:127)

Meanwhile, the Assistant Secretary of the Air Force (Procurement) had identified several crucial questions regarding the ultimate effects of Four-Step on the source selection evolution:

> Do restrictions prohibiting identification of proposal deficiencies preclude optimum solutions to the Government's requirements?

> Is it, in reality, possible to eliminate all vestiges of technical levelling; and, should levelling be discouraged to the extent of frustrating or precluding the Government's maximizing fulfillment of its technical and operational requirements?
>
> Is the practice of buy-in so implicit and so deeply infused in business practice that changes in proposal evaluation and source selection methodology can only have a minimal effect?
>
> Should "four step" source selection replace current proposal evaluation and source selection techniques, or should it be another means to be employed when and where appropriate?
>
> Does reduced or truncated competition at the time of definitive contract negotiations adversely impact the Government's ability to negotiate favorable terms and conditions?
>
> Will the "four step" procurement approach result in higher initial and/or ultimate contract prices? (90:2,3)

On April 1, 1978, the "Final Report" on the DOD Four-Step test was released. It included background, findings, and recommendations. As the background of Four-Step has already been covered, findings and recommendations follow:

1. Time

Data gathered on each program was inconclusive as to whether or not the Four-Step method required more time than conventional procedures. Participants expressed the feeling in interviews that Four-Step was more time-consuming because of the sequential submission of technical and cost proposals. Alternatively, time was saved by negotiating with only one contractor at the end, vice all. (99:III-3 to 5)

2. Solicitation Quality

There was no appreciable upgrading observed in the quality of RFP's during the test, according to Industry participants. It was felt that additional use of Four-Step may

motivate improvement. (99:III-7/8)

3. Proposal Quality

Most Government evaluators saw little change in technical proposal quality. Industry representatives, however, revealed a marked change in corporate strategy to "first and best" due to (1) limitations on discussions, (2) early elimination of offerors, and (3) final negotiations with only a single contractor. Both DOD and Industry agreed that cost proposals were improved due to the additional preparation time allowed after initial discussions on the technical proposals. (99:III-9)

4. Personnel Utilization

Industry claimed that Four-Step required a greater expenditure of resources for the winner, and less for the losers, than with conventional procedures. It was urged that offerors whose technical proposals are "clearly unacceptable" be eliminated from the competition earlier to save even more money for the losers. (99:III-11/12)

5. Single Source Negotiations

DOD evaluators saw nothing but advantages to adopting Step 4, which requires negotiations with only the winning offeror. They responded that there was a significant savings in both time and effort, with no problems encountered during the test. Government favored the Step 4 procedure 82% to 18%; Industry favored it 85% to 15%. (99:III-13 to 15)

6. Discussion of Deficiencies

Both DOD and Industry agreed (1) that technical leveling had been greatly reduced; (2) that technical differences had been more pronounced, making it easier to choose among proposals; (3) that communications had been severely restricted; (4) but

that Four-Step was seen as a potentially valuable tool to enhance the integrity of the acquisition process. (99:III-18 to 21)

7. Cost Estimates and Proposal Decreases

Monitoring in this area showed no evidence of buy-ins in any of the test programs. It was noted, however, that buy-ins are also influenced by factors external to source selection procedures, i.e., the lure of large follow-on production contracts, possible subsequent commercial applications of research work, or simply the desire of a company to expand into a new area of business. (99:III-25)

8. Best-and-Final

No multiple best-and-finals were approved by any service Secretary. It was agreed that the opportunity to call for them was greatly reduced by moving the required approval up to the top echelon of DOD management. (99:III-26)

9. Recommendations

It was recommended that Four-Step source selection be adopted for all competitively negotiated acquisitions above $2 million, involving research and/or development, which have progressed past concept formulation, with few exceptions allowed. It was also advocated that discussions of cost proposals not disclose areas where the Government views a contractor as too high or too low. Early pre-solicitation dialogue between Government and Industry was viewed as very important to achieving successful results, (i.e., draft solicitations, draft specifications, pre-solicitation conferences, and even pre-proposal conferences). (99:IV-1 to 4)

Both the Federal Contracts Report (FCR) and the Government Contracts Service (GCS) reviewed the "Final Report" and succinctly summarized the results. (25;46) Four-Step was also discussed at the Seventh Annual DOD Acquisition Symposium on 31 May-2 June 1978, but no hard opinions on recommendations emerged from papers presented there. (54;55)

E. PROPOSED DAR 4-107 "FOUR-STEP" SOURCE SELECTION PROCEDURES

In June 1978, both the FCR and the GCS also published the proposed DAR coverage on "Four-Step" source selection procedures with short summaries of Four-Step goals, and requested Industry comments on the language. (16; 17) In July 1978, both periodicals subsequently published accounts of several Industry reactions to the proposed DAR procedures. (6; 31) CODSIA, while supportive of the goals of Four-Step, was critical of some of the written procedures. They recommended (1) elimination of the series of opportunities for proposal revisions, (2) earlier expulsion of inferior technical proposals, and (3) increased restriction on the scope of discussions to ensure only that the Government understands the proposals. Two other Industry organizations, the American Defense Preparedness Association (ADPA) and the Institute of Electrical and Electronic Engineers (IEEE), curiously rejected two basic tenants of the Four-Step process, namely non-disclosure of proposal deficiencies, and the prohibition against Government identification of a cost proposal as too high or too low. No real reasons were given for their "status quo" views. (6:A-16) A very idealistic and simplistic appraisal by Dr. Waks of "MITRE" was

synopsized in the August 28, 1978 issue of FCR. Dr. Waks contended that if the Government wanted to do away with auctions, leveling, and buy-ins, they should so direct in an internal regulation, but retain the present procedures. He also declared that technical transfusion should be promoted, not prohibited. His reasoning, however, would not have been very popular with companies contacted for the San Francisco Bay Area survey.

F. DAR 4-107 "FOUR-STEP" IMPLEMENTATION

On October 1, 1978 the Defense Acquisition Circular number 76-17 implemented the final language of DAR 4-107 (APPENDIX C). There were no substantive changes and only a few areas which were rephrased from the text proposed in July 1978. The only significant addition was the encouragement of "early and open" pre-solicitation dialogue in DAR 4-107.1(c).

G. S.1264 "FEDERAL ACQUISITION ACT OF 1977"

In a parallel development to DOD's test of the Four-Step source selection method, Senator Lawton Chiles (Dem-Fla), Chairman of the Senate Committee on Governmental Affairs, was holding hearings on his legislation to modernize Federal Government procurement statutes, S. 1264. Working on numerous recommendations made by the Commission on Government Procurement, Senator Chiles is trying to abolish the Armed Services Procurement Act of 1947, and Chapter IV of the Federal Property and Administrative Services Act of 1949. He wants to replace them with a single, modern statute, applicable to all executive agencies, and designed to stimulate competition and

encourage innovation. The Chiles bill was preceded by a similar one introduced in 1975 by Senator Percy (Rep-Ill). The Percy bill died in committee without hearings. Senator Chiles' bill was introduced in early 1976 as S.3005. S.3005 subsequently died in the 94th Congress but was reintroduced with numerous modifications as S.1264 in early 1977 to the 95th Congress. Hearings were held in July 1977 and several revisions made prior to its ultimate release from committee in February 1978. S.1264 was subsequently passed by Senator Chiles to the Senate Armed Services committee for their approval prior to action on the Senate floor. As the bill did not emerge from the Senate Armed Services Committee prior to Congress' adjournment in September 1978, it must be reintroduced for action by the the 96th Congress in 1979.

Title III of S.1264, "Acquisition by Competitive Negotiation," is reproduced in Appendix D. Basically it calls for negotiated acquisitions to follow "Four-Step" procedures in most, but not all, circumstances. It prohibits ". . . those types of communications between the Government and the offerors which undermine the Competitive Process." (86:38) Differentiation is made between "discussions" and "negotiations." Sole source negotiations are endorsed as the final step in the process, etc.

H. SAN FRANCISCO BAY AREA GOVERNMENT CONTRACTOR SURVEY

Only seven of the twenty firms contacted were familiar enough with Four-Step procedures to answer that particular section of the Questionnaire. Of those seven who did respond, only one was convinced that the best-and-final syndrome would

disappear, while five thought that multiple best-and-finals would stop. Four of the seven felt that buy-ins would at least decrease, but two were unsure. Six of the seven favored a winnowing of the field after evaluation of technical proposals and before submission of cost proposals. Only one did not favor negotiating with just one contractor in Step 4.

In the interviews the loudest objection to Four-Step was the fear of a loss of, or severe reduction in, communications between contractors and the Government. Additional complaints were registered about lengthening an already too long source selection cycle. Basically, though, most Bay Area contractors interviewed were just not sure what to think of Four-Step. Since their views had reinforced the results of most previous studies done on Industry complaints about Government source selection procedures, it is anticipated that with subsequent education and appropriate indoctrination in Four-Step, Bay Area firms will support its aims and methods.

IV. ANALYSIS OF PROS AND CONS OF FOUR-STEP SOURCE SELECTION

Each step of the Four-Step process will be examined, and perceived advantages and disadvantages listed sequentially. The current DAR 4-107 procedures are used as the basis for reference (APPENDIX C).

A. STEP 1

1. Summary

Separate technical proposals are solicited, received, and evaluated. Limited discussions are conducted with all offerors for the purpose of mutual understanding and clarification. During the discussions, technical deficiencies seen by the Government in the proposals are not mentioned.

2. Advantages

a. Submission of the technical proposal first should allow more time to be devoted just to it, with a concomitant increase in its overall quality. This would counter past Industry clamor over inadequate RFP response periods.

b. Limiting the scope of discussions of technical proposals by not disclosing deficiencies, will limit the magnitude of the Government's technical leveling efforts. Limiting technical leveling will subsequently inhibit Government possibilities for promotion of technical transfusion and auctioning. This in turn, will reduce Government sanctioning of contractor "cost optimism" and accompanying buy-ins. Limiting technical leveling will also encourage contractor innovation. It will

mean that differences in technical proposals will remain sharp throughout the evaluation process and give the Government evaluators distinct choices of alternatives in Step 3. Clear differentiation among technical proposals will enable the Government to retain price/cost in its appropriate relative perspective listed in the RFP, and avoid (or reduce the necessity for) "price competition," auctioning, "cost optimism," and buy-ins. This is the most crucial area of Four-Step to the elimination of previous source selection problems. Discussion of deficiencies in the past has been the ultimate culprit, the root of all, or at least most all, of the evil.

c. Limiting the scope of discussions should also save time previously spent in identifying proposal deficiencies. It also ought to encourage more pre-solicitation Government-contractor dialogue and better RFP's. The clearer the Government's solicitation documents, the higher the quality of the contractor responses, and the more genuine the competition.

3. Disadvantages

a. Separating technical and cost proposal submission and evaluation evolutions will lengthen the time required for the source selection process, at least in the early stages. At present, technical and cost packages are submitted and evaluated simultaneously.

b. Government Contracting Officers might be overly cautious in applying Four-Step rules limiting the scope of discussions so that total communications will be unduly restricted. This could leave all parties frustrated and

negatively motivated toward the remainder of the Four-Step process.

c. Not being allowed to point out deficiencies to offerors in Step 1 raises the possibility that the Government may not get what it wants, and/or, that extensive discussions of deficiencies may be necessary in Step 4. If the quality of the typical Government RFP does not improve above its present level this drawback is real.

B. STEP 2

1. Summary

Following the evaluation and discussion of technical proposals, cost/price proposals are received, together with any revisions to technical proposals. The competitive range is then established and those offerors not included are notified. Limited discussions are then held on the cost proposals and the revised technical packages.

2. Advantages

a. Submission of the first cost/price package after evaluation of technical proposals will save the offerors much previously wasted effort. Now they can wait to see what revisions will be necessary in the technical proposal before finalizing their cost presentation.

b. Sequential, vice simultaneous submission of the cost proposal after the technical proposal, will allow more time to be devoted just to cost parameters. Uncertainties can be more thoroughly addressed, estimates refined to more

probable expected values, and the overall quality of the proposal increased.

c. The limitation on discussions which prohibits telling an offeror that his proposal is too high or too low (now permitted by DAR), will discourage auctioning, which will in turn restrict Government condoning of buy-ins.

3. Disadvantages

a. Offerors whose technical proposals are unacceptable are not eliminated until after submission of cost proposals. This requires unnecessary effort on their part.

b. Step 2 allows for revisions of technical proposals which have already been revised once. This could lead to "gaming" and discourage "first and best."

C. STEP 3

1. Summary

At the completion of discussions a "common cut-off" date is set for receipt of final revisions to cost and technical proposals. Evaluations are then conducted on each proposal in total. A single offeror is then selected for negotiation of a contract. Unsuccessful offerors are promptly notified to allow them to release their proposal teams.

2. Advantages

The principal advantage inherent in this step is that the "losers" are notified early and can disband their proposal teams for other work.

3. Disadvantages

Early notification of losers also gives them more time to lodge a protest before the actual contract is negotiated with the winner. This could delay the start of the acquisition project and lengthen the process significantly. Also with proposals being revised, the "common cut-off" holds the possibility for abuse in the finest past traditions of "best-and-final" auctions.

D. STEP 4

1. Summary

After selection of the winner, and notification of the losers, a single contract is negotiated. The negotiations, however, must not draw out, nor involve substantive changes in the Government's requirements or the offeror's proposal. If a contract cannot be consummated in a timely manner, negotiations may be terminated, and a new winning contractor chosen.

2. Advantages

Negotiating with only the winning contractor saves Government negotiators considerable time and effort. It also allows the chosen offeror to be completely frank with the Government. Subsequent program timetables, performance parameters, and cost estimates are thus likely to be more realistic. The integrity of the whole source selection will be improved and political criticism should be dulled.

3. Disadvantages

a. In a time-critical situation, negotiating with a single source in Step 4 may give more leverage to the contractor. Even though the Government could switch to another offeror, a lack of time may effectively close that option. The final contract may then cost more than it would under normal circumstances.

b. The Government may be reluctant to switch to another contractor, even if time is not critical. A switch might be interpreted as a sign of weakness or indecisiveness, and invite a protest from the originally chosen contractor.

c. The fact that Step 3 designates the winning contractor as basically a "sole source" negotiating partner with the Government in Step 4 also has the potential for system disruption.

V. GOVERNMENT CONTRACTOR SURVEY MISCELLANY

The San Francisco Bay Area survey to gether contractor views and ideas on Government source selection problems also produced several interesting comments on other procurement/ acquisition issues. Those interview comments are related here (in no particular order) to provide possible topics for future acquisition research.

A. DCAS

Considerable negative feelings were expressed about the quality of work accomplished by DCAS field personnel during their various plant inspections. Stories were told of visits by DCAS representatives which were made to verify some aspect of a contractor's operation, but which ended up as nothing more than "coffee break" conversations. Contractors complained that most DCAS field people were basically not professionally qualified to perform the tasks of contract administration for which they were paid. Out of twenty contractors, not one had even a small complimentary comment for DCAS' performance. In discussions with several "intelligence" contractors it was learned that DCAS was not even "cleared" to administer those types of contracts. DCAS auditors did not even know when a company had intelligence contracts in-house.

B. COST-PLUS-AWARD-FEE (CPAF)

Most contractors interviewed were inexperienced in this type of Government contract. The several who were familiar

with the CPAF felt strongly negative toward it. They resented the large degree of subjectivity involved in the evaluation of a contractor's performance. Three companies (in dissimilar product fields) revealed a corporate policy which precluded them from negotiating a CPAF contract. One contractor commented that on one past CPAF contract they were so busy keeping the customer happy that their delivery schedule slipped.

C. SOLE SOURCE CONTRACTING

Many of the survey participants were very involved in sole source work. Several contractors did almost nothing but sole source (99%+). None of them saw anything wrong or immoral with that type of business. All of the "99%+" sole source contractors had heavy investments in particular specialties in the electronics field, i.e., communications, electronic warfare, and intelligence. Those firms became very defensive when the possibility was suggested that the Government could save money by releasing competitive solicitations vice sole source awards. Their position was that they were the ones who had developed the particular expertise and that it would be unfair for the Government to release their ideas in competitive solicitations. This was true even in situations where the Government had paid for the development.

D. COMMERCIAL PURCHASING PRACTICES

Several companies who do most of their business with the Government (90%+) have adopted Government acquisition procedures almost verbatum for their own internal purchasing operations.

They claim that basically, Government procedures are efficient and effective. They also explained that as long as they are predominantly a Government contractor, they see advantages in standardizing their operations with Government techniques, (i.e., ease of interface).

Not one company interviewed admitted to engaging in the commercial purchasing practice of "reciprocity." Most stated that it was strictly not allowed by company policy. Others responded that they personally did not think that it was sound business policy.

E. FOREIGN SALES

Several contractors in the communications, electronic warfare, and aircraft fields reported a recent marked increase in direct sales to foreign governments, particularly Middle Eastern ones. None of the sales, however, were conducted through DOD's Foreign Military Sales (FMS) program. All were strictly direct sales. A communications company was beginning to sell more to its foreign clients than to the United States.

F. S.1264

Although all favored Senator Chiles' objectives in S.1264, most survey respondents were very skeptical about his claim that the bill would reduce the amount of Government procurement regulations and red tape. They felt that combining all the Federal directives into just one would not be enough. Most expected that each agency would continue to issue their own implementing instructions (i.e., Navy Procurement Directives), with little reduction in overall volume.

VI. RECOMMENDATIONS AND CONCLUSIONS

A. SUMMARY

The most troublesome negotiated procurement source selection problems in DOD today are poorly written RFP's, technical leveling, technical transfusion, auctioning, and buy-ins. All are impediments to the Government's aim of selecting the best contractor for a particular project. Within Government, these problems were acknowledged and first challenged by NASA in 1970 by the development of procedures now referred to as "Four-Step." The Commission on Government Procurement reviewed the basic tenants of the procedures (limited discussions, and negotiations with only one contractor), generally approved of them, and suggested an additional change which would require sequential submission of technical and cost proposals. GAO first reviewed the NASA procedures in 1972 and upheld their central theme - a limited scope of discussions, not identifying deficiencies. GAO continued this precedent deciding several subsequent protests in 1974. DOD must have been an interested observer. In 1975, after the second round of decisions by GAO upholding NASA, DOD prepared an important policy directive titled "Selection of Contractural Sources for Major Defense Systems." In that directive (released in early 1976) DOD updated an earlier version of the same title, and also included a provision which established a test of DOD's "Four-Step" procedures, which were nearly identical to NASA's. Meanwhile a bill was developing in the Senate, S.1264, sponsored by Senator Lawton Chiles,

that would modernize Federal procurement statutes, and among other things, legitimize the negotiated procurement procedures now called Four-Step. The "Interim Report" on the DOD Four-Step test study was released in mid-1977 and revealed generally favorable results. The "Final Report" came earlier this year and, although much more detailed than the Interim Report, did not differ greatly in its findings. It was recommended that Four-Step be required for nearly all DOD negotiated acquisitions of a Research and Development nature, above a threshold of $2 million, and advanced beyond the conceptual stage. In two subsequent protests of awards made on test programs, GAO upheld its previous positions on the NASA cases and endorsed DOD's right to utilize Four-Step procedures. On 1 October 1978 DOD, in fact, initiated Four-Step as recommended by the "Final Report."

B. RECOMMENDATIONS

The following changes are recommended for implementation to procedures described in the DAR 4-107 coverage of Four-Step (APPENDIX C).

1. Identification of Deficiencies

Paragraph DAR 4-107.5(b) has the potential for "gaming," and should be changed. The sixth sentence, "When necessary for complete understanding of proposals, clarifications and/or additional substantiating data may be requested concerning those areas of an offeror's proposal when there is uncertainty that a deficiency exists" indicates that the Government could tip off a contractor about certain deficiencies just by asking

questions in that area and requiring additional data. Identification of deficiencies in any way should be prohibited and the above sentence rewritten or removed.

2. Earlier Elimination of Unacceptable Proposals

A "technical" competitive range should be established after discussions in Step 1. Clearly unacceptable technical proposals should be rejected at this time, prior to submission of cost packages in Step 2. The additional effort required for a contractor to submit a cost proposal based on a technical proposal already judged unacceptable is a waste of his resources. This is already accepted procedure in Step 1 of the "Two-Step" formal advertised method.

3. Proposal Revisions

Offerors should not be allowed to modify their technical proposals more than once (between discussions in Step 1 and submission of cost proposals in Step 2). Present language allows revisions after discussions in Step 1 and after discussions in Step 2 (prior to submission for evaluation in Step 3). Multiple opportunities for revisions to technical proposals (as opposed to correction of "mistakes") gives the impression of a potential for technical leveling. Multiple revisions will not foster a source selection atmosphere of "first and best."

4. Competitive Range

Paragraph DAR 4-107.5(c)(3) should be amended. The phrase "(i) when the proposal was initially included in the competitive range because it might have been susceptible of being made acceptable," is a holdover from current DAR

guidance concerning the competitive range and is incompatible with Four-Step. In Four-Step a proposal should not be initially included in the competitive range because it might be "susceptible of being made acceptable." In Four-Step a technical proposal cannot be "made" acceptable by subsequent Government identification of proposal deficiencies as was done previously. That is prohibited.

5. Techncial Leveling

The last sentence in paragraph DAR 4-107.5(e)(7) reads that there may be situations where ". . . there are no significant discriminating technical or cost features between two or more offerors" which would then justify simultaneous negotiations with all in the competitive range. This should be stricken. The words appear to invite abuse of the HPA waiver by rewarding possible technical leveling. If the Four-Step process is not properly conducted, and leveling does lead to a situation as hypothesized above, the agency responsible should not be permitted an easy out. Abuse should not be rewarded. Other circumstances could also lead to a situation where there would be "no significant discriminating features" (i.e., inadvertent leveling caused by a particular numerical scoring scheme, or a situation where competing proposals were very similar from the beginning), but technical leveling is the most likely causative factor. The HPA should be the final judge of the situation. This authority, however, should not be delegated.

C. CONCLUSIONS

It is unlikely that any new Government regulation or set of procedures can completely eliminate all abuses of past acquisition practices. No regulation can change the fact that DOD is a monopsonistic buyer. No regulation can realistically eliminate all factors which motivate contractor buy-ins. Four-Step at least addresses the principal procedural problems. It changes past regulatory requirements which not only allowed the abuses, but actually encouraged some of them - leveling, transfusion, auctioning, and buy-ins.

Use of Four-Step procedures will force more extensive pre-solicitation Government-Industry dialogue, something urged for years by contractors. Since discussions are limited, offerors need to know exactly what the Government wants. It will be in the Government's interest to promote clear and well-written RFP's. In the past RFP quality was not really necessary. The Government could get what it wanted by guiding discussions, identifying deficiencies, and having contractors revise their proposals. Government Contracting Officers will probably even start listing their evaluation weighting schemes in RFP's in a further attempt to aid understanding of the solicitation by Industry. The better the RFP, then the better the proposals will be, and the more effective Four-Step will become.

Strict adherence to Four-Step procedures will eliminate technical leveling and technical transfusion; it will greatly reduce auctioning; and buy-ins - since no longer strongly encouraged by the Government - will also decrease. Adoption of

Four-Step by DOD is a sign that Government is indeed serious about trying to change its image in the acquisition of defense weapon systems, and the concomitant expenditure of billions of taxpayer dollars.

APPENDIX A

SAN FRANCISCO BAY AREA SURVEY PARTICIPANTS

Ampex Corporation
401 Broadway
Redwood City, CA
Products: Communication systems and equipment; electronics and electronic systems and components; instrumentation systems; instruments and laboratory equipment; lasers; computers and components; electromagnetic and magnetic systems and tape; office machines and equipment; training aids and devices; engineering, research and development; maintenance, repair and modification services.
Interview: William J. Cassell
Manager, Contract Administration
Data Products Division

Applied Technology Division (Itek Corporation)
645 Almanor Avenue
Sunnyvale, CA
Products: Radar warning systems, power management systems, military minicomputers, laser intercept systems, acousto-optical signal processors, optical spectrum analyzers, hybrid microelectronics liquid crystal displays, radar signal simulators and reconnaissance systems.
Interview: Charles F. Simpson
Purchasing Supervisor

Argosystems, Incorporated
884 Hermosa Court
Sunnyvale, CA
Products: Electronic Countermeasures equipment (passive).
Interview: Ms. Cheryl Austin
Manager, Contract Administration

Fairchild Camera & Instrument Corporation
464 Ellis Street
Mountain View, CA
Products: Standard and custom digital integrated circuits, including MSI and LSI, bipolar memory circuits, linear integrated circuits and integrated microsystems, silicon transistors and diodes, light-emitting diodes, optical arrays, microwave and RF devices, metal-oxide semiconductor devices, direct-view storage and photomultiplier tubes, audio-visual systems; aircraft recording and announcing systems; magnetic heads used for recording, storing and playback; semiconductor test systems, reconnaissance and mapping cameras, analog-to-digital converters; specialized radio-frequency systems; precision optics; aircraft weight and balance systems.
Interview: Mr. J. R. Byrne
Business Development
Manager, A. & D. Programs.

AD-A064 863 NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF F/G 5/1
WEAPON SYSTEMS SOURCE SELECTION: IS FOUR - STEP THE ANSWER.(U)
DEC 78 M J MILLER

UNCLASSIFIED NL

2 OF 2
AD
A064863

END
DATE
FILMED
4-79
DDC

Aydin Energy Corporation
3180 Hanover Street
Palo Alto, CA
Products: High power electronics, radar, microwave, and data communication equipment and computer controlled display terminals.
Interview: Allan Panitch
Vice President, Contracts and Administration

Barry Research Corporation
445 Indio Way
Sunnyvale, CA
Products: Radio communications hardware and instrumentation.
Interview: Robert B. Fenwick
President

Dalmo Victor Operations Division (Textron Incorporated)
1515 Industrial Way
Belmont, CA
Products: Electromagnetic defense systems, electro-optics, and aerospace antennas and displays.
Interview: Eugene Simonalle
Director, Contracts and Legal

ESL Incorporated
495 Java Drive
Sunnyvale, CA
Products: Electronics research and development, reconnaissance systems.
Interview: Charles E. Price
Manager of Material

FMC Corporation, Ordnance Engineering Division
1107 Coleman Avenue
San Jose, CA
Products: Development and engineering support of specialized defense material including armored and unarmored military tracked and wheeled vehicles, amphibious landing vehicles, hydrofoil craft remote control systems, missile support system, armor materials and ocean engineering systems.
Interview: Frank E. Koenig
Assistant Manager, Contract Administration

GTE Sylvania Incorporated (Electronic Systems Group/Western Division)
100 Ferguson Drive
Mountain View, CA
Products: Electronic defense systems, reconnaissance, electro-optics.
Interview: Evan S. Baker
Division Manager of Marketing and Export Programs

Robert R. Wyckoff
Manager, Contracts Administration

Philip A. Gugliotta
Manager, Proposal Center Operation

Mellonics Systems Development Division (Litton Industries)
1001 West Maude
Sunnyvale, CA
Products: Systems engineering, computer programming, data processing.
Interview: Ray Wolfe
Director, Advanced Programs

Memorex Corporation
1200 Memorex Drive
Santa Clara, CA
Products: Disc storage subsystems, disc packs, flexible disc files, data modules, telecommunications, add-on memory and computer-output-microfilm systems, computer tape, audio and video tape, word processing products, computer equipment service.
Interview: Mr. J. J. Pizzo
Manager, Production Control

Raytheon Company, Semiconductor Division
350 Ellis Street
Mountain View, CA
Products: Transistors, diodes, integrated circuits, special semiconductor assemblies.
Interview: Ms. Sharon Campbell
Manager, Government Contracts

Link Division (The Singer Company)
1077 East Arques Avenue
Sunnyvale, CA
Products: Simulators for aircraft flight and mission; spacecraft; visual simulation; general aviation flight trainers; simulators for ASW flight and tactics, helicopters, ships, cockpit procedures, submarines, nuclear power generating stations; visual simulation, digital data recording systems, precision scanning, radar landmass simulation, video data processing systems, research and development; visual systems and tracked vehicle simulators.
Interview: Mr. J. H. LaBonte
Contract Manager
Advanced Products Operation

Stanford Research Institute, International
333 Ravenswood Avenue
Menlo Park, CA
Products: Basic research on almost any subject.
Interview: Phillip O'Donnell
Manager of Proposals and Special Projects

United Technologies Corporation, Chemical Systems Division
1050 East Arques Avenue
Sunnyvale, CA
Products: Aircraft engines, rocket motors, airborne systems, military helicopters, controls and devices.
Interview: Al D. Parker
Manager, Contract Management

Mark J. Brown, Jr.
Manager, Marketing Services

Varian Associates
611 Hansen Way
Palo Alto, CA
Products: Electron tubes and devices, scientific instruments, vacuum products, digital computers, solid state components.
Interview: Fred D. Wilimek
Director, Contract Administration

Watkins-Johnson Company
3333 Hillview Avenue
Palo Alto, CA
Products: Electronic devices and related systems and equipment.
Interview: Mr. Lamar Talbot
Manager, Contract Administration

Westinghouse Electric Corporation, Marine Division
Hendy Avenue
Sunnyvale, CA
Products: DD 963 reduction gears, missile launching and handling for FBM system.
Interview: Larry A. Michael
Materials Manager

Dan H. Bartlett
Marketing Manager, Special Products

Mario A. Coduto
Price Cost Analyst

Lou R. Cetinich
Manager ML&H Purchasing

Hewlett-Packard Company
1501 Page Mill Road
Palo Alto, CA
Products: Electronic and analytical instrumentation, electronic calculators, solid-state components, digital computers.
Interview: Richard B. Lewis
Government Programs Manager

APPENDIX B

SAN FRANCISCO BAY AREA SURVEY QUESTIONNAIRE[1]

Information submitted on the following questionnaire is solely for my own personal use in preparing my Masters thesis. I do not intend to cite specific companies in the thesis, but rather refer to ideas, opinions complaints, and suggestions raised by answers to my questions as being from "industry," at least as I found it.

The initial questions which deal with company size and percentage of government/DOD business are raised to give me a better feel for the setting behind your other responses. Most questions are "marketing" oriented, but the last group request information on internal company buying policy that might need to be passed to the "purchasing" function for completion. If you are interested, I will be glad to send back a compilation of all the answers I receive. Your generous cooperation is sincerely appreciated!

A. General Background.

1. What type of products do you sell to the government?

2. What was your 1977 total sales volume (government and industry)? _____

3. How many employees do you have? _____

---

[1]Twenty contractors were interviewed, but only fifteen submitted a completed questionnaire. Of those fifteen, all did not answer every question, so the total number of responses are not uniform throughout.

4. Approximately what percentage of your sales volume is government? _____

5. Approximately what percentage of your government business is:

a. DOD _____

b. prime contracts _____

c. negotiated contracts _____

6. What is your position title?

In the following questions, either fill in the blank, or circle your answer as appropriate:

SA - Strongly Agree
A - Agree
U - Undecided
D - Disagree
SD - Strongly Disagree

B. Requests For Proposals (RFPs).

1. How many years experience do you personally have with government RFPs? Range: 5-25 yrs; Mean: 15.5 yrs; Median: 17 yrs.

2. Do you subscribe to Commerce Business Daily? Yes - 15 No - 0

3. The Commerce Business Daily is an effective communications link between the government and insutry.

SA-1 A-8 U-3 D-2 SD-0

4. 30 days notice in the Commerce Business Daily is enough time to adequately prepare for the subsequent RFP.

SA-0 A-6 U-2 D-4 SD-3

5. How do you learn about RFPs?

6. A brief (3-5 pg.) Executive Summary would significantly improve the communication potential of the rest of the RFP.

SA-0 A-6 U-5 D-3 SD-0

7. The government generally calls for more data than is necessary to choose the best contractor.

SA-3 A-8 U-0 D-3 SD-0

8. Longer RFPs lead to longer proposals.

SA-3 A-5 U-3 D-3 SD-0

9. Page limits should be placed on RFPs.

SA-1 A-5 U-3 D-3 SD-2

10. Page limits should be placed on proposals.

SA-1 A-8 U-2 D-2 SD-1

11. Longer proposals lead to a longer evaluation period.

SA-2 A-7 U-2 D-4 SD-0

12. Our firm has experienced that a longer evaluation period leads to increased costs.

SA-6 A-6 U-2 D-1 SD-0

If SA/A, why?

13. Standard government "master solicitations" containing repetitively used terms, conditions, and clauses should be prepositioned with contractors and not mailed with each RFP.

SA-2 A-9 U-2 D-2 SD-0

14. Management procedures and systems (i.e., management information systems, configuration management, data management, quality assurance program, and facilities data) should be certified periodically (i.e., annually) by a government plant inspection, vice submitting, repetitive voluminous packages of plans with each proposal.

SA-5 A-3 U-2 D-2 SD-2

15. RFPs usually allow enough time (in relation to the complexity of the procurement) to respond realistically.

SA-0 A-6 U-1 D-6 SD-2

16. RFPs should be sent to only those firms interested and capable of realistically competing and winning the procurement (i.e., solicit a competitive number of firms vice a maximum number).

SA-3 A-9 U-0 D-3 SD-0

17. RFPs should include specific evaluation factor weights, not just relative rankings.

SA-4 A-8 U-2 D-1 SD-0

C. Early Government-Contractor Dialogue.

1. A presolicitation conference (meeting held before RFP is finalized) would uncover unrealistic requirements being planned for the RFP.

SA-0 A-9 U-4 D-1 SD-0

2. A presolicitation conference would help eliminate subsequent unrealistic contractor proposals.

SA-0 A-10 U-2 D-2 SD-0

3. Presolicitation conferences would add to the clarity and quality of the RFP, with less subsequent guessing by contractors in their proposals.

SA-1 A-12 U-1 D-1 SD-0

4. If contractors are allowed to help write the RFP, there is a real possibility of restrictive specifications in favor of one contractor or another, or at least such an impression.

SA-1 A-11 U-0 D-3 SD-0

5. A clearer and more realistic RFP would encourage a greater number of contractors to participate.

SA-1 A-9 U-4 D-1 SD-0

6. Preproposal conferences (meetings held shortly after mailing of the RFP) would help put each prospective offeror on equal footing.

SA-1 A-11 U-1 D-2 SD-0

D. Source Selection.

1. What factors should the government use in negotiated source selections? In what order of priority?

2. Source selection for the Full Scale Development (FSD) phase of the weapons acquisition process should be weighted more heavily toward management and technical capability than contractor cost estimates.

SA-2 A-8 U-3 D-0 SD-0

3. Source selection for the Production phase of the weapons acquisition process should be weighted more heavily toward management and technical capability than contractor cost estimates.

SA-1 A-7 U-4 D-1 SD-0

4. If less weight is given to contractor cost estimates for source selection during the early phases of the weapons acquisition cycle, buy-ins will decrease (a buy-in being defined as a situation in which a contractor negotiates an initial unrealistically low cost estimate, with the anticipation of "getting well" on the changes to follow).

SA-3 A-7 U-2 D-0 SD-0

5. What other procedures could be developed to reduce buy-ins?

6. From the government's point of view, buy-ins should be considered undesireable.

SA-6 A-5 U-2 D-0 SD-0

7. Have you ever lost a contract because you suspect that someone else bought in? Yes-11 If so, please describe the situation.

8. Have you ever bought in on a government contract? Yes-5

9. Plant visits should be made to help evaluate management and technical capabilities.

SA-4 A-6 U-2 D-2 SD-0

10. Source selection should be more than a mathematical equation with a limited number of factors and their precise weights.

SA-3 A-8 U-2 D-0 SD-0

If SA/A, why?

11. An "inside track" is necessary to win most government contracts.

SA-3 A-6 U-2 D-3 SD-0

E. Four-Step Source Selection Method.

If you are familiar with the 4-Step method (whether actual experience or only just professional knowledge) please complete the following questions.

1. The 4-Step method will encourage "first and best" instead of "best and final" offers.

SA-0 A-1 U-3 D-3 SD-0

2. Elimination of multiple "best and finals" will eliminate auctioning.

SA-0 A-5 U-1 D-1 SD-0

3. Since cost realism is an accepted 4-Step proposal evaluation factor, buy-ins will decrease.

SA-0 A-4 U-2 D-1 SD-0

4. In step 2, where cost proposals are submitted subsequent to technical proposals submitted in step 1, procedures should be changed so that only 3-5 contractors with the best technical proposals would be requested to submit cost packages.

SA-1 A-5 U-1 D-0 SD-0

5. In step 3, where a single contractor is chosen for subsequent negotiations, procedures should be changed so that final negotiations are held simultaneously with the two best suited contractors, cost and technical proposals considered.

SA-0 A-1 U-3 D-2 SD-1

6. Technical transfusion and technical leveling will be strongly inhibited by not discussing proposal "deficiencies" with offerors.

SA-0 A-3 U-4 D-0 SD-0

7. If technical transfusion is reduced, contractors will be less reluctant to include proprietary data and innovative ideas in proposals.

SA-0 A-4 U-2 D-0 SD-1

F. S.1264, Senator Chiles' bill to modernize government procurement.

1. Use of functional specifications will lead to more innovation, competition, and less sole sourcing.

SA-2 A-6 U-3 D-2 SD-0

2. Use of functional specifications, instead of Milspecs, will save the government money.

SA-3 A-5 U-5 D-0 SD-0

3. Negotiating definitive contracts with all offerors in the "competitive range" is an unnecessary waste of time and money for both the government and the offerors.

SA-5 A-5 U-1 D-1 SD-0

4. Government agencies will be able to circumvent prohibitions against sole sourcing without too much trouble.

SA-2 A-5 U-3 D-3 SD-0

5. Combining all federal government procurement regulations into one statute will help contractors; save paperwork, time, and money; and encourage greater competition on government projects.

SA-1 A-5 U-3 D-4 SD-0

G. Internal Contractor Purchasing Policies.

1. How do you obtain competition in your purchase solicitation process?

2. What number of sources do you consider adequate for competition? _____

3. Do you usually try to buy from more than one source at the same time (dual source)? _____

4. How many pages to your solicitation packages run? From ___ to ___ pages, including "boiler plate," specs, etc.

5. How many pages does an average solicitation package run? ___

****If possible could you please attach a sample copy of a "typical" solicitation package to the back of this questionnaire. It would really be appreciated.

6. What factors do you consider in your source selection process? In what order of priority?

8. What solicitation techniques do you use, that might be transferrable to the government, to simplify and expedite your purchase projects?

9. What types of contracts do you use in commercial business (%ea)?

a. cost-plus-a-percentage-of-cost ____

b. cost-plus-a-fixed-fee _____

c. cost-plus-incentive-fee _____

d. cost-plus-award-fee _____

e. fixed-price-incentive _____

f. firm-fixed-price _____

g. other (describe) _____

H. General Comments.

Please add any additional comments you feel might help improve the government's solicitation process. Again, thank you very much for your participation.

Name of company _____

APPENDIX C

DAR 4-107 "FOUR-STEP" SOURCE SELECTION PROCEDURES

4-107 "Four-Step" Source Selection Procedures.

4-107.1 General.

(a) The Four-Step process, briefly described is the (i) submission and evaluation of the offeror's technical proposal; (ii) submission and evaluation of the offeror's cost proposal; (iii) establishment of the competitive range and selection of the apparent successful offeror; and (iv) negotiation of a definitive contract.

(b) The conventional process differs in that (i) offeror's technical and cost proposals are submitted and evaluated simultaneously; (ii) definitive contracts are negotiated with all offerors in the competitive range; and (iii) the contractor is selected. One additional difference in the two processes involves discussion of proposal deficiencies. In the Four-Step process, deficiencies are not revealed to the individual offerors, while in the conventional process protracted discussions may evolve around proposal deficiencies.

(c) These procedures are applicable to all competitively negotiated research and development acquisitions in accordance with 4-107.2, .3 and .4. They are designed primarily to: focus attention on technical excellence, maintain the integrity of each offeror's proposal, provide visibility of discriminating features between proposals, reduce the opportunity for buy-ins, preclude the opportunity for the use of auctioning techniques and assure a disciplined and orderly process in the selection of sources. To this end, early and open dialogue, e.g., pre-solicitation notices and conferences, pre-proposal conferences, informal solicitations and the tailoring of specifications, is encouraged to establish a better understanding of the Government's needs.

(d) Following the technical evaluation and discussions, cost/price proposals are obtained from each offeror together with any necessary revisions to update technical proposals. Subsequent to the receipt of the cost/price proposals and any technical revisions, a competitive range is established. Those proposals outside the competitive range are eliminated at this point and the offerors so notified. Limited discussions are then held with the remaining offerors on their cost/price proposals and any technical revisions. Following such discussions, a proposal may be eliminated from further consideration and the offeror so notified when it is determined to be no longer in the competitive range.

(e) At the completion of technical and cost/price discussions, a common cut-off date for the receipt of final revisions to technical and cost/price proposals is then established and the remaining offerors so notified. An evaluation is then made of each offeror's total proposal and a single offeror is normally selected for negotiation of a contract

(see 4-107.5(e)(7)). In order to release proposal teams at the earliest practical date, all offerors are notified of the contractor selected.

(f) A definitive contract is then negotiated with the selected offeror and contract award accomplished. These negotiations must be completed in a timely manner and must not involve changes in the Government's requirements or the contractor's proposal which would affect the basis for source selection. In the event a definitive contract cannot be awarded on a timely basis, negotiations may be terminated and a new source selection decision made.

4-107.2 Applicability. These procedures shall be used for all competitively negotiated research and development acquisitions except as provided in 4-107.3 or 4-107.4. They may, however, be used for any other acquisition when approved in accordance with Departmental procedures subject to the restrictions below. Acquisitions for which these procedures are not used shall follow the procedures of 3-805.

4-107.3 Exceptions and Restrictions.

(a) These procedures are not mandatory for R&D acquisitions which:

(i) involve the exploration or formulation of design concept(s) as defined in DoDD 5000.1; or

(ii) involve the selection of contractor(s) from among firms under contract for competitive hardware demonstration, validation, or full-scale engineering development.

(b) These procedures shall not be used for any acquisitions which:

(i) are negotiated pursuant to DAR 3-202;

(ii) are solely for personal or nonpersonal services;

(iii) are for architect-engineer services; or

(iv) have an estimated value of less than two million dollars.

4-107.4 Waiver. Waiver of the requirement for use of these procedures in the competitive acquisition of defense systems designated as major pursuant to DoDD 5000.1 shall be granted only by the Secretary of the Department involved. For all other acquisitions, waiver shall be granted in accordance with Departmental instructions.

4-107.5 Procedures. Acquisitions subject to this paragraph shall be conducted in accordance with the following procedures:

(a) Solicitations. Solicitations shall be developed in accordance with DAR 3-501 and shall include the following special requirements and instructions:

(1) A general statement explaining the concept and procedures to be used in the selection of a contractual source for the proposed acquisition.

(2) The relative importance of technical/system performance criteria.

(3) A notification that any proposals which are unrealistic in terms of technical or schedule commitments or unrealistically low in cost or price will be deemed reflective of an inherent lack of technical competence or indicative of

failure to comprehend the complexity and risks of the proposed contractual requirements and may be grounds for the rejection of the proposal.

(4) A schedule of planned source selection events including, but not limited to, specific dates for the submission of both technical and cost/price proposals.

(5) Provisions requiring sequential submission of separate technical and cost/price proposals.

(6) Requirements for the technical proposal to include, where appropriate, identification of trade-offs among performance, production costs, operating and support costs, schedule and logistic support factors; and requirements for cost estimates which illustrate the impact of these trade-offs. In addition, requirements for the technical proposal to include information necessary to indicate that the design to cost and operating and support cost objectives, when used, would be achieved when the item(s) enter production.

(7) Requirements for the cost proposal to include the detailed, substantiating cost information pertaining to the performance of the contemplated contract and other detailed data necessary for evaluation of cost factors to be considered in the source selection decision.

(8) A statement that both technical and cost/price discussions will be limited as set forth in (b) and (c) below.

(9) A notification that negotiations will be conducted only with the selected offeror, and that offerors should present their most favorable technical and cost/price proposals initially.

(b) Step One - Evaluation and Discussion of Technical Proposals. A detailed evaluation shall be accomplished on all technical proposals received based upon the established criteria in the solicitation. Upon completion of the initial evaluation, limited discussions shall be conducted with all offerors for the purpose of achieving maximum understanding and clarification of the contents of the proposal. During such discussions, offerors shall not be advised of deficiencies in their proposals. A deficiency is defined as that part of an offeror's proposal which would not satisfy the Government's requirements. Offerors shall be advised of areas of their proposal in which the intent or meaning is unclear or for which additional substantiating data is required for evaluation. When necessary for complete understanding of proposals, clarifications and/or additional substantiating data may be requested concerning those areas of an offeror's proposal when there is uncertainty that a deficiency exists. In most cases, clarification of proposals and additional substantiating data, if required, will be included by offerors with their cost/price proposals and technical revisions in Step Two. When it is apparent from the proposals received that the Government's requirements have been misinterpreted, clarification shall be provided to all offerors to ensure complete understanding.

(c) Step Two - Evaluation and Discussion of Cost/Price Proposals.

(1) Following the technical evaluation and discussions, complete, fully documented cost/price proposals and revisions of technical proposals shall be obtained. Each proposal shall be evaluated and those which have no reasonable chance for award may be eliminated from the competition at this point and the offerors notified that they are outside the competitive range and will be given no further consideration.

(2) Limited discussions as indicated herein shall be conducted with all remaining offerors in connection with their respective cost/price proposals, either on an element-by-element basis or in their entirety. These discussions may include (i) rectification and/or correction of inconsistencies or mathematical errors; (ii) correlation of elements of cost with their respective technical efforts, in order to assess the extent of realism in the cost proposal; and (iii) discussion necessary to ensure a complete understanding of the Government's requirements, what is being offered (including delivery schedules, trade-offs among performance, design-to-cost, life cycle cost, and logistics support factors) and other contract terms. An offeror shall not be advised during these discussions that its proposal or any of its elements are either too high or too low. When discussions of technical proposals are required they shall be limited as stated in (b) above.

(3) Following such discussions, a proposal may be eliminated from further consideration and the offeror so notified (i) when the proposal was initially included in the competitive range because it might have been susceptible of being made acceptable, or (ii) because there was uncertainty whether it was in the competitive range, and in either case, through discussions relating to ambiguities and omissions it becomes clear that the proposal should not have been included in the competitive range initially.

(d) Step Three - Common Cut-Off.

(1) A common cut-off date for receipt of technical and cost/price proposal clarifications or substantiations shall be established and all participants so notified in accordance with DAR 3-805.3.

(2) Offerors shall be informed that any changes incorporated in the revised proposal must be fully substantiated. Supporting data must provide traceability to the causative technical, business, or financial conditions that brought about any change. Lump sum reductions in cost/price shall not be accepted without supporting rationale.

(3) After the common cut-off date, requirements shall not be imposed for additional proposals or revisions to submitted technical or cost proposals without the prior approval of an official at a level no lower than that of a Head of a Procuring Activity (HPA). Auctioning through repetive calls for offers is strictly prohibited.

(4) Final detailed negotiations leading to the bilateral execution of a definitive contract shall be deferred until after the selection of an offeror for final contract negotiations.

(e) Selection of an Offeror for Final Contract Negotiations.

(1) Complete evaluation of all factors in accordance with the criteria set forth in the solicitation, including cost/fee or price, shall be conducted with careful regard for security procedures and good business practice.

(2) Based upon the offeror's latest total acceptable technical and cost proposals, selection of a single source shall be made for the conduct of final negotiations leading to a definitive contract. (This does not preclude selecting more than one source when multiple sources are desired; e.g., competitive prototypes.) Procedures for waiver of this requirement are at (7) below.

(3) Proposals unrealistic in terms of technical or schedule commitments or unrealistically low in cost or price will be deemed reflective of an inherent lack of technical competence or indicative of failure to comprehend the complexity and risks of the contract requirements and may be grounds for rejection of the proposal.

(4) The selection will be based on an integrated decision, involving consideration of technical approach, capability, management, design to cost, operating and support cost objectives, historical performance, price/cost and other factors.

(5) Following selection of the best offeror, all competitors shall be notified of the source to be awarded the contract, subject to negotiation of a satisfactory definitive contract.

(6) The source selection decision is conditional in that award of a fully negotiated contract to the selected offeror must be accomplished within a period of time prescribed by the selection authority. In the event a definitive contract cannot be awarded on a timely basis, negotiations may be terminated and a new source selection decision made.

(7) Proposed contracts may be negotiated with two or more offerors within the competitive range, if the HPA makes a written determination that a final selection of a single source should not be made until such proposed contracts have been negotiated. Such determination shall not be made solely for the purpose of maintaining a competitive environment. However, such a determination may be based, for example, on unique situations where there are no significant discriminating technical or cost features between two or more offerors.

(f) Step Four - Final Negotiations and Contract Award. Final negotiations leading to bilateral execution of a single definitive contract will be conducted only with the selected offeror except when multiple negotiations are authorized by the HPA. Final negotiations shall include the disclosure and resolution of all technical deficiencies and all unsubstantiated areas of cost. Negotiations shall not involve changes in the Government's requirements or the contractor's proposal which would affect the basis for source selection. In the event that such changes are necessary, the procedures in DAR 3-805.4 shall

be followed. The final negotiated contract must represent a reasonable probability that the Government's requirements will be satisfied at a fair and reasonable cost/fee or price.

(g) Debriefings. Formal debriefings shall be conducted after contract award, in accordance with DAR 3-508.4.

APPENDIX D

S.1264: TITLE III - ACQUISITION BY COMPETITIVE NEGOTIATION

Criteria for Use

Sec. 301. The competitive negotiation method shall be used in the acquisition of property and services when -

(1) the anticipated total contract price exceeds the amount specified in title IV of this Act for use of the simplified small purchase method; and

(2) the acquisition does not meet the criteria established pursuant to section 101(b) or as set forth in section 201 of this Act for use of competitive sealed bids.

Solicitations

Sec. 302. (a) Solicitation for offers shall be issued to a sufficient number of qualified sources so as to obtain effective competition and shall be publicized in accordance with section 512 of this Act, with copies of the solicitation to be provided or made accessible to other interested or potential sources upon request; however, eligibility to respond to the solicitation may be restricted to concerns eligible to participate in small business set-asides or other such authorized programs.

(b)(1) Each solicitation shall include both the evaluation methodology and the relative importance of all significant factors to be used during competitive evaluation and for final selection. In any case, if price is included as a primary or significant factor, the Government's evaluation shall be based where appropriate on the total cost to meet the agency need.

(2) Any changes in the evaluation factors or their relative importance shall be communicated promptly in writing to all competitors.

(c) To the maximum extent practicable and consistent with agency needs, solicitations shall encourage effective competition by -

(1) setting forth the agency need in functional terms so as to encourage the application of a variety of technological approaches and elicit the most promising competing alternatives,

(2) not prescribing performance characteristics based on a single approach, and

(3) not prescribing technical approaches or innovations obtained from any potential competition.

(d) If either the Government or an offeror identifies inadequacies in the solicitation which cause misunderstandings of the agency's needs or requirements, clarification of intent shall be made to all offerors in a timely fashion and on an equal basis.

(e) The preparation and use of detailed specifications in a solicitation shall be subject to prior approval by the agency head. Such approval shall include written justification to be

made a part of the official contract file, delineating the circumstances which preclude the use of functional specifications and which require the use of detailed product specifications.

Evaluations, Award, and Notifications

Sec. 303. (a) Written or oral diiscussions shall be conducted with all responsible offerors in a competitive range. Such discussions shall generally be limited to obtaining any needed clarification, substantiation, or extension of offers. An initial offer may be accepted without discussion when it is clear that the agency need would be satisfied on fair and reasonable terms without such discussions, and the solicitation has advised all offerors that award may be made without discussions. If discussions are conducted with any offeror, discussions shall be conducted with all offerors in a competitive range. Discussions shall not disclose the strengths or weaknesses of competing offerors, or disclose any information from an offeror's proposal as a result thereof. Auction techniques are strictly prohibited. Auction techniques include, but are not limited to, indicating to an offeror a price which must be met to obtain further consideration, or informing him that his price is not low in relation to another offeror, or making multiple requests for best and final offers. Detailed negotiations of price and technical factors shall generally be limited to the successful offeror(s).

(b) When awards are made for alternative approaches selected on the basis of the factors contained in the solicitation, whether for the basis of the factors contained in the solicitation, whether for design, development, demonstration, or delivery, the contractors shall be sustained in competition to the maximum extent practicable until sufficient test or evaluation information becomes available to narrow the choice to a particular product or service.

(c) Until selection is made, information concerning the award shall not be disclosed to any person not having source selection responsibilities, except that offerors who are eliminated from the competition may be informed prior to awards.

(d) Award shall be made to one or more responsible offerors whose proposal(s), as evaluated in accordance with the terms of the solicitation are most advantageous to the Government. Notification of award to all unsuccessful offerors shall be made with reasonable promptness.

(e) Notwithstanding any other provision of this fact, the continued use of multiple award schedules is authorized.

BIBLIOGRAPHY

1. Aerospace Industries Association of America, An AIA Study of United States Air Force Requests for Proposals - Critique and Recommendations. Washington, D.C.: Aerospace Industries Association of America, December 1969.

2. Belden, Colonel David L., and Cammack, Ernest G., Procurement. Washington, D.C.: Industrial College of the Armed Forces, 1973.

3. Blue Ribbon Defense Panel, Report to the President and the Secretary of Defense on the Department of Defense, Washington, D.C.: U.S. Government Printing Office, July 1, 1970.

4. Boileau, Oliver C., "Weapons Acquisition: An Industry View, Program Managers Newsletter, Spring 1977, pp. 25-30.

5. Chiles, Senator Lawton W., Introductory remarks on S.1264. U.S. Senate, April 6, 1977.

6. "CODSIA Endorses Principles of DOD's Proposed '4-Step Source Selection,' but Questions Language." Federal Contracts Report, July 10, 1978, pp. A-13 to A-16.

7. Commission on Government Procurement, Report of the Commission on Government Procurement, Vol. 2, Washington, D.C.: U.S. Government Printing Office, December 31, 1972.

8. _____. Final Report, Study Group #6, Pre-Contract Planning, Washington, D.C.: U.S. Government Printing Office, December 1, 1971.

9. _____. Final Report, Study Group #7, Cost and Pricing Information, Washington, D.C.: U.S. Government Printing Office, February 1972.

10. _____. Final Report, Study Group #11, Research and Development, Vol. 1, Washington, D.C.: U.S. Government Printing Office, February 1972.

11. _____. Final Report, Study Group #11, Research and Development, Vol. 2, Washington, D.C.: U.S. Government Printing Office, February 1972.

12. _____. Final Report, Study Group #11, Research and Development, Vol. 3, Washington, D.C.: U.S. Government Printing Office, February 1972.

13. _____. Final Report, Study Group #12, Major Systems Acquisition, Vol. 1, Washington, D.C.: U.S. Government Printing Office, January 1972.

14. _____. Final Report, Study Group #12, Major Systems Acquisition, Vol. 2, Washington, D.C.: U.S. Government Printing Office, January 1972.

15. _____. Final Report, Study Group #12, Major Systems Acquisition, Vol. 3, Washington, D.C.: U.S. Government Printing Office, January 1972.

16. "DOD Offers For Comment Proposed ASPR/DAR 'Four-Step Source Selection' Procedures," Federal Contracts Report, June 5, 1978, pp. A-1 to A-2, D-1 to D-2.

17. "DOD Proposes Publication of Four-Step Source Selection Procedures in DAR/ASPR," Government Contracts Service, June 30, 1978, pp. A-8 to A-9, B-11 to B-15.

18. Duby, Martin H., "A Working Definition of Competitive Range," NCMA Newsletter, October 1971, pp. 60-61.

19. Esposito, Brigadier General A. L., USAF, "An Analysis of Frustration: The RFP - Proposal Cycle," Defense Management Journal, January 1973, pp. 8-12.

20. Hall, Robert B., "Reinstating Competition in Systems Acquisition: A Four Dimensional Framework," National Contract Management Journal, Spring 1975, pp. 87-104.

21. Hayward, John T., "Letters to the Editor," Defense Management Journal, April 1972, p. 64.

22. Hitch, Charles J., and McKean, Roland N., The Economics of Defense in the Nuclear Age,, New York: Atheneum, 1975.

23. Holifield, Chet, "Federal Procurement and Contracting Reform," The Brooklyn Law Review, Winter 1975, p. 18-40.

24. Femino, Dominic A., and Smail, Lawrence M., "Disclosure of Evaluation Factors and Their Relative Weights: A Continuing Procurement Problem," National Contract Management Journal, Vol. 11 No. 2 (Winter 1977-1978): 15-23.

25. "'Four-Step Source Selection' Recommended for Bulk of DOD's Competitive R & D," Federal Contracts Report, May 1, 1978, pp. A-8 to A-9, E-1 to E-5.

26. Fox, J. Ronald, Arming America, How the U.S. Buys Weapons, Boston: Harvard University, 1974.

27. Freeman, Major Willie, Jr., and Welbaum, Captain Robert G., USAF, "An Investigation of a Proposed Auction Technique as a Method of Procurement," MS. Thesis, Air Force Institute of Technology, January 1975.

28. Guyton, Robert D., and Thomas R. Schaefer, Prerequisites for Winning Government R & D Contracts, Dayton: Universal Technology Corporation, 1970.

29. Hynes, Cecil V., Purchase Communications: A Study of the Request for Proposals, College Park: University of Maryland, (June 1976).

30. _____. "Taking a Look at the Request for Proposal, Defense Management Journal, October 1977, pp. 27-31.

31. "Industry Group 'Hardily (sic) Endorses' Principles of DOD's Proposed Four-Step Source Selection Procedure, but Questions Implementation Language," Government Contracts Service, July 31, 1978, pp. A-9 to 12.

32. Judson, Robert, "The Use of Functional Purchase Descriptions for Advertised Procurements," National Contract Management Journal, Vol. 11 No. 1 (Summer 1977): 1-13.

33. Keeling, Gerald F., "The Games People Play in Source Selection Competitions," National Contract Management Journal, Vol. 9 No. 1 (Spring 1975): 121-131.

34. Lenk, Barry R., Government Procurement Policy: A Survey of Strategies and Techniques, Washington, D.C.: The George Washington University,(May 1977).

35. Logistics Management Institute, The DOD-Contractor Relationship, Washington, D.C.: Logistics Management Institute,(November 1973).

36. Logistics Management Institute, DOD-Contractor Relationship - Preliminary Review, Task 69-21, Washington, D.C.: Logistics Management Institute, (March 1970).

37. MacFarlan, W. Gregor, "Government Solicitation, Proposal Evaluation and Source Selection Process: Observations from a Contractor's Perspective," Address to NCMA Washington, D.C. Chapter, March 21, 1973.

38. Morris, Steele, "'Communications Effectiveness' Needed in RFP-Proposal Contract Award Cycle," Defense Management Journal, January 1973, pp. 17-25.

39. Nassr, Michael A., "A New Look at Contractors' Past Performance," Paper presented at the Seventh Annual Acquisition Research Symposium, Hershey, Pennsylvania, May 31-June 2, 1978.

40. National Security Industrial Association, Defense Acquisition Study, Washington, D.C.: National Security Industrial Association, (July 1, 1970).

41. _____. Proceedings and Policy & Guidelines, Navy Systems Acquisition Symposium, Arlington, Virginia: n.p. 27-28 October 1977, pp. 127-128.

42. Neffner, H.W., "Competitive Evaluation and Selection of Contractors in the Acquisition of Major Systems" (address presented to NCMA South Bay Chapter Annual Education Conference, NCMA Newsletter, April 1972, pp. 81-83.

43. NSIA Research and Engineering Advisory Committee, A New Approach to RFP's for Acquisition of Army Weapons Systems, Washington, D.C.: National Security Industrial Association, (March 23, 1973).

44. Office of Management and Budget, Major Systems Acquisitions, Circular No. A-109, Washington, D.C.: Office of Management and Budget, April 5, 1976.

45. _____. Major Systems Acquisitions: A Discussion of the Application of OMB Circular No. A-109. OFPP Pamphlet No. 1, Washington, D.C.: Office of Federal Procurement Policy, Office of Management and Budget, August 1976.

46. "OSD Study Group Recommends Adoption of Four-Step Source Selection Procedure Despite Identified Deficiencies." Government Contracts Service, May 31, 1978, pp. A-17 to A-19.

47. Pace, Dean Francis, J.D., Negotiation and Management of Defense Contracts, New York: Wiley-Interscience, 1970.

48. Peck, M.J., and Scherer, F.M., The Weapons Acquisition Process, an Economic Analysis, Boston: Harvard University Press, 1962.

49. Phelps, Edwin L., "Government Solicitation, Proposal Evaluation, and Source Selection for Less Than Major Systems: Reflections and Recommendations for Reform," Address to NCMA Symposium, Washington, D.C., July 25, 1974.

50. Procurement Associates Inc., Government Prime Contracts and Subcontracts Service, Covina: Procurement Associates Inc., 1973.

51. Ransom, Lcdr. Edward A., USN, "Specification Writing for Communications Equipment: A Comparative Study of Military and Civilian Procedures," M.S. Thesis, Naval Postgraduate School, March 1974.

52. Reda, Frank, "What is 'Competitive Range' in Source Selection?", NCMA Newsletter, April 1971, p. 51.

53. Scherer, F.M., The Weapons Acquisition Process: Economic Incentives (Volume II), Boston: Harvard University Press, 1964.

54. Schlosser, Lucille S., "In Defense of Best-and-Final Offer," Paper presented at the DOD/FAI Seventh Annual Acquisition Research Symposium, Hershey, Pennsylvania, May 31-June 2, 1978.

55. Smail, Lawrence M., "Four Step Source Selection: Meaningful Discussions Still a Problem," Paper presented at the DOD/FAI Seventh Annual Acquisition Research Symposium, Hershey, Pennsylvania, May 31-June 2, 1978.

56. "Source Selection: DOD Moves Four Steps." Federal Contracts Report, August 28, 1978, pp. K-1 to K-10.

57. Sterling Institute, Navy Research and Development Contracting, Washington, D.C.: Sterling Institute, (1973).

58. _____. Vol. 1 of Defense Procurement Executive Seminar, Washington, D.C.: Sterling Institute, (1973).

59. Stewart, Lieutenant General James T., USAF, "Source Selection Process Faces Winds of Change," Defense Management Journal, January 1973, pp. 13-16.

60. _____. "Letters to the Editor," Defense Management Journal, July 1972, pp. 62-63.

61. U.S. Army Audit Agency, Procurement Solicitation and Selection Practices, U.S. Army Mobility Equipment Command, Washington, D.C.: U.S. Army Audit Agency, February 1972.

62. U.S. Comptroller General, Report B-163058, Cost Growth in Major Weapons Systems, Washington, D.C.: U.S. General Accounting Office, March 26, 1973.

63. _____. Report B-168450, Ways for the Department of Defense to Reduce Its Administrative Costs of Awarding Negotiated Contracts, Washington, D.C.: U.S. General Accounting Office, September 17, 1973.

64. _____. Decision B-156888, Washington, D.C.: U.S. General Accounting Office, July 2, 1965.

65. _____. Decision B-158326, Washington, D.C.: U.S. General Accounting Office, May 5, 1966.

66. _____. Decision B-160065, Washington, D.C.: U.S. General Accounting Office, November 17, 1966.

67. _____. Decision 51 Comp. Gen. 621, Washington, D.C.: U.S. General Accounting Office, March 31, 1972.

68. _____. Decision B-179030, Washington, D.C.: U.S. General Accounting Office, January 24, 1974.

69. _____. Decision 54 Comp. Gen. 408, Washington, D.C.: U.S. General Accounting Office, November 21, 1974.

70. _____. Decision B-187146, Washington, D.C.: U.S. General Accounting Office, November 18, 1976.

71. _____. Decision B-186930, Washington, D.C.: U.S. General Accounting Office, November 18, 1976.

72. _____. Decision B-186671, Washington, D.C.: U.S. General Accounting Office, November 23, 1976.

73. _____. Decision B-186001, Washington, D.C.: U.S. General Accounting Office, December 22, 1976.

74. _____. Decision B-186057, Washington, D.C.: U.S. General Accounting Office, February 8, 1977.

75. _____. Decision B-187645, Washington, D.C.: U.S. General Accounting Office, June 15, 1977.

76. _____. Decision B-187811, Washington, D.C.: U.S. General Accounting Office, July 29, 1977.

77. _____. Decision B-188542, Washington, D.C.: U.S. General Accounting Office, August 16, 1977.

78. _____. Decision B-188372, Washington, D.C.: U.S. General Accounting Office, September 22, 1977.

79. _____. Decision 57 Comp. Gen. 989, Washington, D.C.: U.S. General Accounting Office, September 27, 1977.

80. _____. Decision B-188871, Washington, D.C.: U.S. General Accounting Office, October 25, 1977.

81. _____. Decision B-188807, Washington, D.C.: U.S. General Accounting Office, November 28, 1977.

82. _____. Decision B-188272, Washington, D.C.: U.S. General Accounting Office, November 30, 1977.

83. _____. Decision B-190298, Washington, D.C.: U.S. General Accounting Office, January 31, 1978.

84. _____. Decision B-184194, Washington, D.C.: U.S. General Accounting Office, May 26, 1978.

85. U.S. Congress. Senate. Committee on Armed Services, Weapons Systems Acquisition Process, Hearings of the Senate Committee on Armed Services, 92d Cong., 1st sess., December 1971.

86. _____. Senate. Federal Acquisition Act of 1977, S. Rept. 715 to Accompany S.1264, 95th Cong., 2d sess., 1978.

87. U.S. Department of the Air Force, Air Force Systems Command, Acquisition Management, Handbook for Managers of Small Programs, Washington, D.C.: U.S. Government Printing Office, October 1, 1975.

88. _____. Air Force Systems Command, Request for Proposal Preparation Guide, ASD Pamphlet 70-4, Washington, D.C.: U.S. Government Printing Office, May 29, 1973.

89. _____. Air Force Systems Command, Systems Procurement Guide, Washington, D.C.: U.S. Government Printing Office, January 1975.

90. _____. Office of the Assistant Secretary. Memorandum, subject: Session III, Four Step Source Selection Panel for DOD Procurement Conference, Washington, D.C., October 5, 1977.

91. U.S. Department of Commerce. Project Officer's Procurement Guide, Washington, D.C.: U.S. Government Printing Office, June 1978.

92. U.S. Department of Defense, Defense Acquisition Regulations, 1976 Edition, Washington, D.C.: U.S. Government Printing Office, 1976.

93. _____. DOD Directive 5000.28, 23 May 1975, Design to Cost, Washington, D.C.; U.S. Government Printing Office, 1975.

94. _____. DOD Directive 5000.1, 18 January 1977, Major Systems Acquisitions, Washington, D.C.: U.S. Government Printing Office, 1977.

95. _____. DOD Directive 5000.2, 18 January 1977, Major System Acquisition Process, Washington, D.C.: U.S. Government Printing Office, 1977.

96. _____. DOD Directive 4105.62, 6 January 1976, Selection of Contractual Sources for Major Defense Systems, Washington, D.C.: U.S. Government Printing Office, 1976.

97. _____. Office of the Assistant Secretary for Installations and Logistics (Procurement). Memorandum, subject: Test of the Four Step Source Selection Concept, Washington, D.C., October 28, 1975.

98. _____. Office of the Assistant Secretary (MRA&L). "4-Step Source Selection" A Study to Test and Evaluate New Source Selection Procedures, Interim Report, Washington, D.C.: U.S. Government Printing Office, July 31, 1977.

99. _____. Office of the Undersecretary, Research and Engineering. "Four Step Source Selection" A Study to Test and Evaluate New Source Selection Procedures, Final Report, Washington, D.C.: U.S. Government Printing Office, April 1, 1978.

100. _____. Proceedings, Sixth Annual Procurement Research Symposium. Fort Lee, Virginia: n.p. June, 1977.

101. _____. Proceedings, Seventh Annual Acquisition Research Sumposium. Hershey, Pennsylvania: n.p. May 31-June 2, 1978.

102. Williams, Robert, "Proposal Evaluation Planning and Simulation," National Contract Management Journal, Vol. 10, No. 2 (Winter 1976-1977): 54-60.

103. _____; Arvis, Paul F.; and Griffiths, Kenneth D., Developing Guidance for the Preparation of Requests for Proposals, Fort Lee, Virginia: U.S. Army Procurement Research Office, (December 1973).

104. Woodard, Wendell O., and others, "The Impact of Optimism on the Preparation of Weapon System Cost Estimates," NCMA Newsletter, July 1971, pp. 55-57.

INITIAL DISTRIBUTION LIST

		No. Copies
1.	Defense Documentation Center Cameron Station Alexandria, VA 22314	2
2.	Library, Code 0142 Naval Postgraduate School Monterey, California 93940	2
3.	Department Chairman, Code 54Js Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93940	1
4.	Adjunct Professor D. N. Burt, Code 54Bv Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93940	1
5.	LCDR Michael James Miller, SC, USN USS WHITE PLAINS (AFS-4) FPO San Francisco, CA 96601	1
6.	Defense Logistics Studies Information Exchange U.S. Army Logistics Management Center Fort Lee, VA 23801	1
7.	LCDR David V. Lamm, SC, USN, Code 54Lt Department of Administrative Sciences Naval Postgraduate School Monterey, CA 93940	1
8.	CDR Peter DeMayo, USN Office of the Assistant Secretary of the Navy (MRA&L) Assistant Director for Acquisition and Contract Policy Navy Department Washington, D.C. 20360	1