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THESIS

AN ANALYSIS OF SOURCE SELECTION PROCEDURES
FOR ENGINEERING SUPPORT SERVICES CONTRACTS

by

Kenneth D. Marsh

December 1989

Thesis Advisor:

E. N. Hart

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An Analysis of Source Selection Procedures For
Engineering Support Services Contracts

by

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Lieutenant, United States Navy
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Submitted in partial fulfillment of the
requirements for the degree of

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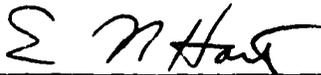
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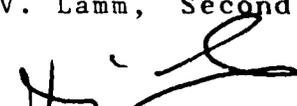
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ABSTRACT

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I. INTRODUCTION

A. AREA OF RESEARCH

Engineering support services performed by Government contractors ensure more efficient and effective operation of weapon systems, equipment, components, and related software. These nonpersonal services, through which no Government supervision or direction of contractor employees takes place, are typically performed by a manufacturer's engineers, technicians, and field service representatives at either a manufacturer's plant or at on-site defense locations [Ref. 1:encl. (4)]. The development of new technologies within the Navy over the past two decades has often outstripped in-house technical capability. Thus the use of engineering support services is often a legitimate and economical way to meet mission requirements. This research will examine key problems in engineering support services contracts, focusing on the development of preaward source selection criteria within the Navy. In addition, engineering support contract issues such as cost realism, quality, and the use of uncompensated overtime will be examined. Lastly, an appropriate source selection structure for engineering support services contracts will be presented.

This research was accomplished primarily through field interviews and telephone conversations with cognizant

Government and Defense Industry personnel. In addition, selected Government data bases were accessed to provide data useful for this study.

B. RESEARCH QUESTIONS

1. Primary Research Question

What are the key problems in engineering support services contracts and how might these problems be avoided in order to improve the contracting process?

2. Subsidiary Research Questions

- a. What are engineering support services contracts and when are they used?
- b. What problems are encountered in source competition and selection for engineering support services contracts?
- c. What issues arise when developing evaluation criteria?
- d. What are appropriate evaluation factors (Section M of the Request For Proposal) for engineering support services contracts?

C. OBJECTIVE

The objective of this research is to examine and answer these questions. By doing so, a qualitative insight will be provided for Navy acquisition managers as to source selection planning for engineering support services contracts.

D. SCOPE OF THESIS

The research focused on the source selection process leading up to contract award. Detailed analysis of postaward contract administration procedures were excluded. The study is an assessment of current problems and issues in source competition and selection for engineering support services contracts. An appropriate source selection structure is presented for use in the contracting process.

E. METHODOLOGY

The research data were collected from field interviews and telephone conversations with cognizant Government and Defense Industry personnel. Interviewees were queried about problems encountered in source competition and selection for engineering support services contracts. Questions included:

1. Industry:

- a. Should past contractor performance be included in source selection criteria?
- b. Do you encounter problems in interpreting Statements of Work? If so, what kind?
- c. Should the Navy procure engineering support services under the best value method or low cost, technically acceptable method?

- d. What are the key problems encountered in contractor proposals for uncompensated overtime and how might they be solved?
- e. What contract types are appropriate for engineering support services procurements?
- f. Should contractor adoption of Total Quality Management (TQM) principles be included in source selection criteria or award fee evaluation criteria?
- g. Does the Government do an adequate job of preparing independent cost estimates?
- h. What contracting techniques are helpful in improving industry-Government communication within the engineering support services arena?
- i. What improvements would you add to the source selection process for selecting engineering support services?

2. Government:

- a. Do you include past contractor performance in source selection criteria?
- b. Do you include contractor adoption of TQM principles in source selection criteria?
- c. What innovative techniques have you used in developing source selection criteria?

- d. Under what circumstances do you use the best value method or the low cost, technically acceptable method?
- e. What contract types are appropriate for engineering support services procurements?
- f. How do you prepare independent cost estimates?
- g. What are the key problems encountered in contractor proposals for uncompensated overtime and how might they be solved?
- h. What contract administration lessons learned can be employed in the source selection process to improve the acquisition process?

F. ORGANIZATION

Chapter I defined the research problem and its importance. The objective, scope, and methodology of the thesis were also presented. Included in this chapter were basic interview questions for industry and Government that will serve as a framework for the study.

Chapter II describes what engineering support services are and when they are used.

Chapter III will focus upon engineering support services source selection problems. Particular emphasis will be upon the responses received from industry and Government.

Chapter IV presents analysis of key issues developed through research and interviews with industry and Government personnel.

Chapter V provides conclusions based upon findings and recommendations regarding source competition and selection for engineering support services contracts. Areas of study that warrant further research are also identified.

II. BACKGROUND

A. INTRODUCTION

This chapter will provide background information and a general description of what engineering support services are and when they are used. Current regulations and statutes governing these services will be synopsized. A general overview of the source selection planning process will also be presented.

B. FEDERAL ACQUISITION REGULATION (FAR)

Federal Acquisition Regulation (FAR) part 37 (Service Contracting) contains the current Federal regulations governing engineering support services (ESS) contracts. ESS contracts contain both nonpersonal services contract and service contract characteristics. The FAR defines a nonpersonal service contract as [Ref. 2:p. 37-1]:

. . . a contract under which the personnel rendering the services are not subject, either by the contract's terms or by the manner of its administration, to the supervision and control usually prevailing in relationships between the Government and its employees. On the other hand, a personal services contract means a contract, that, by its express terms or as administered, makes the contractor personnel appear, in effect, Government employees.

The FAR also defines a service contract as [Ref. 2:p. 37-1]:

. . . a contract that directly engages the time and effort of a contractor whose primary purpose is to perform an identifiable task rather than to furnish an

end item of supply. A service contract can cover services performed by either professional or nonprofessional personnel.

ESS contracts are also subject to the Service Contract Act (SCA) of 1965 (41 U.S.C. 351-357), which provides for minimum wages and fringe benefits for certain nonsalaried personnel [Ref. 2:p. 37-2]. Bona fide engineers and other salaried professionals are not subject to the SCA, which is implemented in the services contracting process through Department of Labor (DOL) wage determinations. A typical ESS contractor has half or more of its personnel subject to SCA provisions. One important distinction between hourly-wage employees subject to the SCA and those salaried employees that are not is the requirement for SCA-covered employees to be paid overtime for any hours worked in excess of a standard 40 hour work week. Salaried personnel, by comparison, are not required to be compensated by their employers for overtime hours worked. This practice of uncompensated overtime is a major issue in the ESS contracting arena that will be examined in later chapters.

Inherent in ESS contracting is the fact that the Government is contracting out a substantial amount of engineering and technical work that at one time had been performed in-house. In the 1940s and 1950s the Armed Services had extensive arsenals, shipyards, laboratories, and other facilities dedicated to research, development, and

production of munitions, ordinance, and weapons platforms. Since then the emphasis has shifted away from in-house accomplishment of these engineering and technical functions. Certain strategic and tactical analyses have been contracted out along with more mundane management support services. Examples of these contracts, which often run into the tens of millions of dollars, include value engineering analyses, development of configuration management data bases, design and support services for flight testing operations, and life cycle support of computer based systems. Advanced Navy systems, such as the Aegis cruiser and Tomahawk cruise missile, have received engineering, technical, and operational support through ESS contracts.

Contractor support services, of which engineering support services are a subsector, have been described as an \$8 billion annual business within the Department of Defense (DOD). Contracts for these services have grown at an estimated two to threefold rate over the past ten years. Within the Navy Field Contracting System, most Navy research and development centers, ordinance stations, weapons support centers, and regional contracting centers acquire engineering support services to meet Navy mission requirements. Table I summarizes total contract actions and obligated dollars for Navy Field Contracting System activities in Fiscal Year 1989. Naval Air Systems Command and Naval Sea Systems Command, two

headquarters activities not included in the Navy Field Contracting System, also contract for engineering support services amounting to hundreds of millions of dollars.

C. WHAT ARE ENGINEERING SUPPORT SERVICES?

Unlike procurement of hardware and supplies, acquisition of engineering and technical services involves the buying of a level of effort from a contractor. With these services the Government is buying expertise, knowledge, and time; this expertise and knowledge are very difficult to quantify and can only be qualified through personnel educational and work background requirements written into the solicitation [Ref.

TABLE I

LISTING OF ALL ENGINEERING SERVICE CONTRACTS MADE BY THE NAVY FIELD CONTRACTING SYSTEM FOR FISCAL YEAR 1989

<u>ACTIVITY</u>	<u>CONTRACT ACTIONS</u>	<u>OBLIGATED \$</u>
Naval Ocean Systems Center, San Diego, Ca.	1066	\$ 782,432,000
Naval Weapons Center, China Lake, Ca.	341	\$ 229,342,000
Naval Underwater Systems Center, Newport, R.I.	1198	\$ 191,671,000
Naval Regional Contracting Center, San Diego Detachment, Long Beach, Ca.	358	\$ 139,565,000
Naval Regional Contracting Center, Philadelphia, Pa.	1025	\$ 118,970,000
Naval Air Station, Patuxent River, Md.	398	\$ 80,533,000

TABLE I (Continued)

<u>ACTIVITY</u>	<u>CONTRACT ACTIONS</u>	<u>OBLIGATED \$</u>
Naval Air Development Ctr., Warminster. Pa.	586	\$ 65,523,000
Naval Supply Center, Norfolk, Va.	544	\$ 63,645,000
Naval Engineering Services Unit. Philadelphia, Pa.	492	\$ 60,430,000
Naval Training Systems Ctr., Orlando, Fl.	235	\$ 59,749,000
D.W. Taylor Naval Ship R & D Center, Bethesda, Md.	421	\$ 55,537,000
Naval Surface Weapons Center, Dahlgren, Va.	275	\$ 47,027,000
Other Activities	1941	\$ 216,870,000
TOTALS:	8880	\$2,111,294,000

Source: Supply Systems Command

3:p. 15]. Most Statements of Work (SOW) are broadly worded, allowing the Navy the flexibility to redefine tasks for accomplishment while staying within the scope of work of the contract. Unlike contracts for hardware, supplies, and other tangible end items, the source selection criteria for ESS contracts centers on a completely different set of criteria. For example, the Navy will emphasize educational and work experience of senior and key personnel who will guide the contract effort as a key selection criterion. The

contractor's demonstrated technical expertise, as shown through past contract performance and its technical approach in performing sample tasks, will also be scrutinized in the source selection process. The engineering support services industry is highly competitive by nature. Some people term this competition "cutthroat". In laying out a source selection plan, the Navy and other Government agencies frequently encounter the problem of how to discriminate between contractors offering low cost, technically acceptable proposals and contractors offering higher cost, superior technical proposals exceeding the minimum acceptable requirements defined in source selection criteria. Navy policy has allowed contracting officers and source selection authorities to select vendors that provide a "best value" or "greater value" to the Navy. In such cases, a proposal meeting solicitation requirements with the lowest price may not be selected if award to a higher priced proposal affords the Government a greater overall benefit. At the same time a large number of Navy contracts have been awarded in recent years using a low cost, technically acceptable source selection criteria method. The appropriate use of these vastly different source selection criteria methods is a major issue in the ESS arena that will be examined in subsequent chapters. In summary, Navy policy on ESS contracting is "to

strive to make sound business decisions, always considering cost and performance objectives." [Ref. 3:p. 15]

D. WHEN ARE ENGINEERING SUPPORT SERVICES CONTRACTS USED?

A requirement for engineering support services is originated when a program office or other Navy activity defines a requirement for engineering or technical capabilities not available in-house or at another Navy or DOD activity. ESS contracts may be used in those cases where the task to be performed involves the application of skills not available in-house or such skills would not be economical or feasible to develop. An analysis also has to be made as to whether the requirement can be met by the use of other Navy or DOD resources, including field activities or Navy laboratories. A Statement of Work (SOW) must be prepared that reflects minimum needs and does not require the contractor to perform any of the basic and control responsibilities of the Navy activity. The requirements originator must clearly describe the need for ESS and justify its use. The requirement needs to be approved and funded early to permit orderly acquisition planning.

Requirements originators will often take an active role in ESS contract administration. The procuring contracting officer, in tandem with the contracting officer's technical representative (COTR) assigned in the contract, will oversee postaward contract performance. The COTR is responsible for

data deliverables and is the agent that certifies that the Government has received satisfactory technical performance from the contractor [Ref. 3:p. 16]. COTRs often serve on source selection evaluation teams and can provide perspectives on postaward issues that can be addressed in the source selection process.

E. SUMMARY

Chapter II provided background information concerning Navy contracting for engineering support services. The FAR defines ESS contracts as containing both nonpersonal services contract and service contract characteristics. ESS contracts are used in instances where a requirement exists for engineering or technical expertise not available in-house or at other Navy or DOD resources.

As was shown in this chapter, requirements originators play an important role in preparing a Statement of Work and later participating in postaward contract administration. Chapter III will present the organizational structure for source selection planning, focusing on the principal preproposal activities and the milestones of the source selection process itself. Source selection evaluation criteria used by the Navy will be examined and compared with evaluation criteria used by the Army, Air Force, and National Aeronautics and Space Administration (NASA).

III. ENGINEERING SUPPORT SERVICES SOURCE SELECTION PROBLEMS

A. INTRODUCTION

This chapter will examine problems encountered in competitive source evaluation and selection for engineering support services (ESS) procurements. First, acquisition planning will be examined. Second, the development of a source selection plan and appropriate source selection criteria will be examined. Lastly, issues in evaluating contractor proposals and awarding ESS contracts will be explored, focusing on viewpoints of cognizant Government and industry personnel voiced during field interviews and telephone conversations. Improvements to the ESS source selection process offered by both parties will be outlined.

B. ACQUISITION PLANNING

As with all acquisitions, a well thought out ESS acquisition plan is essential to successful contract execution and resulting defense readiness. Considered within the acquisition planning process are requirements determination, examination of options and objectives, requirements approval, and the organization of an acquisition team to prepare an acquisition requirements package to the contracting officer. A formal acquisition plan must be submitted to the Assistant Secretary of the Navy

(Shipbuilding and Logistics) (ASN (S & L)) for ESS contracts of \$10 million or greater. Even for smaller procurements, a detailed acquisition plan should be formulated. Good acquisition planning will give consideration to the entire procurement process, considering all elements: management, technical expertise, availability of resources, desired results, and cost [Ref. 3:p. 16]. In this "balancing act" process, the acquisition team must sort out conflicting priorities. With an austere funding environment continuing within DOD, avoidance of expensive programs while obtaining a high level of technical performance are major considerations in ESS planning.

The acquisition planning team will be comprised of technical personnel (including the contracting officer's technical representative (COTR) assigned), contracting officer, legal personnel, pricing and cost analysts, and other support personnel. Among the primary factors they will consider in the acquisition planning process include: acquisition/program tasking history, type of contract, funding, kinds of contract vehicles, program schedules, procurement method, maximization of competition, contract incentives, lead times, source selection methodology/criteria and contract administration [Ref. 3:p. 17-18].

Table II outlines generic Navy Regional Contracting Center (NRCC), San Diego Detachment, Long Beach, Ca.

contracting timeliness for competitive non-restricted acquisitions originating from requirements of Pacific Missile Test Center (PMTC), Point Mugu, Ca. As this table illustrates, the total award elapsed calendar time via critical paths is 24 months and 21 days. From the

TABLE II

GENERIC NRCC, SAN DIEGO DETACHMENT, LONG BEACH, CA.
 CONTRACTING TIMELINES IN ACTUAL WORKING DAYS (ASSUMED
 START DATE OF 04 JANUARY 1988) FOR COMPETITIVE
 NON-RESTRICTED ACQUISITIONS

<u>DATE</u>	<u>RESPONSIBLE PARTY/ACTION REQUIRED</u>	<u>ELAPSED TIME</u>
04JAN88	PMTC-1: Requirement determined	0
04JAN88	PMTC-2: Examine options/objectives	10
19JAN88	PMTC-3: Obtain directorate approval of requirement	3
22JAN88	PMTC-4: Organize and instruct ARPP Team	5
29JAN88	PMTC-5: Prepare acquisition require- ments package (ARP)	52
13APR88	PMTC-6: Perform administrative coordination	8
25APR88	PMTC-7: Perform functional coordination	0
09MAY88	PMTC-8: Prepare white paper and brief Commander, PMTC	5
16MAY88	PMTC-9: Review, QA, and update of ARP	5
23MAY88	PMTC 10: Prepare and mail ARP to NRCC	2
25MAY88	LB-1: Receive PMTC procurement request (PR)	0

TABLE II (Continued)

<u>DATE</u>	<u>RESPONSIBLE PARTY/ACTION REQUIRED</u>	<u>ELAPSED TIME</u>
25MAY88	LB-2: Control number assigned	2
27MAY88	LB-3: PR screened and buying section assigned	2
01JUN88	LB-4: PR review by negotiation supervisor	5
08JUN88	LB-5: Individual negotiator assigned	2
10JUN88	LB-6: Negotiator review of PR	5
17JUN88	LB-7: Small business and competitive review	3
22JUN88	LB-8: Prepare and mail info request to PMTC	8
05JUL88	LB-9(PMTC): Receive request and develop info needed by NRCC	6
13JUL88	LB-10(PMTC): Prepare/mail response to NRCC	5
20JUL88	LB-11: Submit AP for approval	44
21SEP88	LB-12: Draft presolicitation documentation (including J & A)	13
11OCT88	LB/CBD-1: Synopsis runs in CBD for 15 calendar days	11
13OCT88	LB-14: Presolicitation approvals and sole source decision	5
13OCT88	LB-15: Solicitation draft prepared by negotiator	5
20OCT88	LB-16: Type and proof solicitation	8
08NOV88	LB-17: Legal review of solicitation	3
14NOV88	LB-18: Issue solicitation	3

TABLE II (Continued)

<u>DATE</u>	<u>RESPONSIBLE PARTY/ACTION REQUIRED</u>	<u>ELAPSED TIME</u>
17NOV88	LB-19: Receive technical questions from offerors	10
17NOV88	LB-19A: Submit proposals (in 45 days with questions or amendments)	33
02DEC88	LB-20: Consolidated questions sent to PMTC	5
09DEC88	LB-21(PMTC): Develop answers to contractors' questions	7
20DEC88	LB-22: Prepare and mail response to NRCC	5
28DEC88	LB-23: Prepare and mail solicitation amendment to offerors	5
05JAN89	LB-24: Proposals submitted	10
19JAN89	LB-25: Receive technical/price proposals	0
19JAN89	LB-26: Technical proposals to PMTC for technical evaluation	6
19JAN89	LB-27: Prepare and send request to DCAA for field pricing report	4
26JAN89	DCAA-1: DCAA prepares and sends audit reports to NRCC	66
30JAN89	LB-28(PMTC): Technical evaluation completed by PMTC requestor	22
02MAR89	LB-29: Technical evaluation returned by PMTC to NRCC	8
01MAY89	LB-30: Competitive range determination	10

TABLE II (Continued)

<u>DATE</u>	<u>RESPONSIBLE PARTY/ACTION REQUIRED</u>	<u>ELAPSED TIME</u>
15MAY89	LB-31: Prepare prenegotiation business clearance	8
25MAY89	LB-32: Prenegotiation business clearance goes to CRB	5
02JUN89	LB-33: Over \$16 million (\$8 million if award to other than low offeror): prenegotiation business clearance to NAVSUP	5
09JUN89	NAVSUP-1: NAVSUP approves and returns prenegotiation business clearance	22
09JUN89	NAVSUP-2: Over \$40 million (\$20 million if award to other than low offeror): prenegotiation business clearance to ASN (S&L)	5
16JUN89	ASN-1: ASN (S&L) approves and returns prenegotiation business clearance	22
19JUL89	LB-34: Receive prenegotiation business clearance	0
19JUL89	LB-35: Conduct technical and cost negotiations	15
09AUG89	LB-36: Best and final request to offerors	4
15AUG89	LB-37: Best and final response from offerors	15
06SEP89	LB-38: Best and final proposals to PMTC for final technical evaluation	5
13SEP89	LB-39(PMTC): Best and final technical evaluation	22

TABLE II (Continued)

<u>DATE</u>	<u>RESPONSIBLE PARTY/ACTION REQUIRED</u>	<u>ELAPSED TIME</u>
16OCT89	LB-40(PMTC): Technical evaluation results received by NRCC	5
23OCT89	LB-41: Prepare postnegotiation business clearance	8
23OCT89	LB-42: Approved prenegotiation objectives achieved	0
02NOV89	LB-43: Postnegotiation business clearance goes to CRB	5
09NOV89	LB-44: Over \$16 million (\$8 million if award other than low offeror): postnegotiation business clearance to NAVSUP	5
17NOV89	NAVSUP-3: Over \$40 million (\$20 million if award to other than low offeror): postnegotiation business clearance to ASN (S&L)	5
17NOV89	NAVSUP-4: NAVSUP approves and returns postnegotiation business clearance	22
24NOV89	ASN-2: ASN (S&L) approves and returns postnegotiation business clearance	22
28DEC89	LB-45: Receive postnegotiation business clearance	0
28DEC89	LB-46: Prepare award documentation	3
03JAN90	LB-47: Type and proof award documentation	7
12JAN90	LB-48: Contract review by negotiator	3

TABLE II (Continued)

<u>DATE</u>	<u>RESPONSIBLE PARTY/ACTION REQUIRED</u>	<u>ELAPSED TIME</u>
17JAN90	LB-49: Contract signed by contractor and contracting officer	3
22JAN90	LB-50: Three-day hold for Congressional announcement (over \$3 million)	3
25JAN90	LB-51: Announcement of award	0

*Total award elapsed time via critical paths:
24 months, 21 days

Key to abbreviations used:

ARPP: Acquisition requirements package preparation

ASN (S&L): Assistant Secretary of the Navy (Shipbuilding and Logistics)

CBD: Commerce Business Daily

CRB: Contract Review Board

DCAA: Defense Contract Audit Agency

J & A: Justification and Approval

LB: Navy Regional Contracting Center, San Diego Detachment, Long Beach, Ca.

NAVSUP: Naval Supply Systems Command, Washington, D.C.

PMTC: Pacific Missile Test Center, Point Mugu, Ca.

Source: Pacific Missile Test Center

determination of a requirement through the award announcement, 71 action steps are included in this acquisition planning and source selection process. To enhance

communication between technical codes and the Navy Regional Contracting Center (NRCC) contracting officer, PMTC also developed contracting time lines for sole source, small business set aside, small disadvantaged business set aside, and 8(a) set aside ESS procurements.

C. CONTRACT TYPES

The two most common contract types chosen for Navy ESS acquisitions are cost-reimbursement and time and materials contracts. Cost-reimbursement contracts provide for payment of all allowable and allocable costs incurred. Most Navy contracts for development work or work of a highly technical nature are either cost-plus-fixed-fee (CPFF) or cost-plus-award-fee (CPAF) in the ESS arena. The researcher found no instances of cost-plus-incentive-fee (CPIF) contracts used in Navy ESS acquisitions. Both Government and industry personnel are in general agreement that CPIF contracts are more suited for hardware acquisitions where an established cost history is available.

A CPFF contract permits contracting for efforts that otherwise might present too great a risk to contractors, but it provides the contractor only a minimum incentive to control costs [Ref. 1:p. 16-6]. Contracts for flight test design and analysis, for instance, are usually CPFF due to uncertainty of the mix and quantity of labor hours required to perform this highly technical effort.

CPAF contracts are the preferred contract type when a high level of Government-contractor interaction is anticipated and the Government also wants to incentivize contractor performance. CPAF contracts are not normally used for ESS contracts of \$40 million or more unless permission is obtained by ASN (S&L). An example of a predominantly CPAF contract for ESS is a delivery order type contract between Naval Weapons Center, China Lake, Ca. and Comarco, Inc., Weapons Support Division, Ridgecrest, Ca. This contract contains a generic Statement of Work calling for the contractor to furnish the necessary labor, equipment, and material to deliver studies and evaluations associated with weapons system (and related items) effectiveness analysis and design analysis. The contract also calls for technical information services, documentation services, and program management support. The level of effort calls for minimum hours (45,000), estimated hours (540,000), and maximum hours (900,000) to accomplish the delivery orders. Estimated cost, maximum award fee, and total estimated cost and award fee are also delineated for the minimum, estimated, and maximum hours. Unique to this contract is the estimated 80 percent use of CPAF delivery orders and 20 percent use of firm-fixed-price (FFP) delivery orders. Under the contract terms, the contractor does not earn award fees for any effort performed

under FFP delivery orders. Profit on FFP delivery orders is negotiated separately for each delivery order.

The FAR states that a time and materials (T&M) contract may be used only when it is not possible at the time of placing a contract to estimate accurately the extent or duration of the work or to anticipate costs with any reasonable degree of confidence [Ref. 1:p. 16-13]. For example, a T & M contract might be used for development of a configuration data base. A T & M contract provides no positive profit incentive to the contractor for cost control or labor efficiency [Ref. 1:p. 16-13]. The principal driver of costs in all ESS contracts is direct labor hours expended. Although the fixed hourly rate in a T & M contract offers great appeal to cost-conscious Government personnel, a "blank check" exists whereby a contractor can invoice the Government at the rate set forth in the contract for all hours worked, perhaps 48 or more hours per week for some employees [Ref. 4:p. 12]. Once the contractor recovers all wages and indirect expenses, the full hourly billing rate under a T & M contract is 100 percent profit. Thus appropriate Government surveillance of contractor performance is required to prevent abuse of this system and to give reasonable assurance that efficient methods and effective cost controls are being used [Ref. 1:p. 16-13].

Fixed-price contracts are seldom used in Navy ESS acquisitions. In general most contractors are reluctant to assume a high degree of cost responsibility for development work or other work where the extent, duration, or costs of the effort are unclear. The Army Tank-Automotive Command (TACOM), Warren, Mi. has awarded fixed-price-incentive-firm (FPIF) contracts for systems technical support (STS) for the Army's Heavy Forces Modernization Program. Three years ago the Army decided to compete STS for its tanks. Having accumulated several years of experience in the number of labor hours required for engineering, logistics, and program management efforts, TACOM decided to issue a FPIF contract, as they believed they had a reasonable basis for predicting the labor hour mix. In issuing the solicitation, TACOM gave offerors copies of work directives for the first year and an estimate of the labor mix. In one case, TACOM and the contractor agreed to adjust the contract ceiling price, target cost, and target profit downward by 20 percent when the contractor only used 80 percent of the labor hours called for in the FPIF contract.

D. DEVELOPMENT OF SOURCE SELECTION CRITERIA

In setting up a solicitation, Statements of Work (SOWs) must permit full and open competition and include restrictions only to the extent necessary to satisfy the needs of the Government. [Ref. 5] The underlying premise is

that the Government gets a better deal from competition. Each solicitation must include a statement of all significant factors, including price and quality, which the agency head reasonably expects to consider in evaluating the proposals and the relative importance assigned to each of these factors. The award will be based solely on the factors specified in the solicitation.

Source selection criteria must be identified early in the acquisition process. [Ref. 5] The FAR requires price and quality to be addressed in every source selection. Price is not required to be the controlling factor in the source selection decision. Quality can be addressed in terms of technical excellence, management capability, personnel qualifications, schedule compliance, past performance, and related factors. Since the Government is looking prospectively at performance, other factors such as cost realism may be included. While the lowest price or lowest total cost to the Government is properly the deciding factor in many source selections, in certain acquisitions the Government may select an offeror whose proposal offers the greatest value in terms of performance and other factors. For instance, the Government might procure highly technical services such as flight test analyses on a best value basis while less technical services, such as a predominantly drafting/computer operator effort, might be procured on a low

cost, technically acceptable basis. In summary, the FAR requires the source selection decision to be based upon price, quality, and any other factors tailored to the acquisition.

In practice, the requiring activity submits to the contracting officer those items it wants considered as pertinent to the award. [Ref. 5] Price and quality are then worked against each other. Quality or price can then be set up as the overriding factor. In ESS procurements made under the best value method, the relative weights of quality and price are typically 60 percent and 40 percent respectively, as per guidance from ASN (S & L). The Air Force and Army procure ESS using the best value method predominantly. Both services often state that contract award will be based "on an integrated assessment of quality and price." On occasion the Army has used relative weights of 70 percent and 30 percent for quality and price respectively. The Navy has considered prohibiting the assignment of a numerical score to the proposed cost or price in best value source selections. Appendix A contains a draft policy memorandum originated by ASN (S & L) which would abolish such scoring. If adopted, such a policy would generally bring Navy ESS contracting procedures into line with the Army, Air Force, NASA, and other Federal agencies.

Once the source selection criteria are disclosed, the Government is fairly locked in. [Ref. 5] With tight budgets there is growing pressure to make price the controlling factor in award decisions. There is no requirement that cost-reimbursement contracts be awarded on lowest offered price but there is much momentum that way. If the requiring activity wants ESS procured on a best value basis, it must persuade the contracting officer to structure the solicitation to favor these other criteria over cost the entire way through the acquisition process. If the solicitation says price will control the award decision, the Government cannot get to the end of the acquisition cycle and then award to a higher priced offeror. The Government is then attempting to award in violation of the disclosed criteria. Thus the requiring activity must articulate to the contracting officer the significance of cost in terms of what a good value will be, how much the requiring activity is willing to pay, and what the estimate of cost should be.

In developing a source selection plan, primary consideration should be given to which offeror can perform the contract in a manner most advantageous to the Government. [Ref. 5] The Army and Air Force often use a formal source selection model for procurements exceeding \$10 million. An Army or Air Force General typically serves as the source selection authority (SSA), assisted by a source selection

advisory council (SSAC) and a source selection evaluation board (SSEB). The SSA decides which offeror will get the award after receiving input from SSEB committees on the technical and cost review of proposals, coupled with the comments of the SSAC. The Navy model for ESS procurement makes the contracting officer the SSA unless a formal source selection model is chosen for an ESS procurement in the hundreds of millions of dollars. Information accumulated by the contracting officer includes business clearances, price analyses, independent government cost estimates, reviews of technical proposals, findings of review boards, and various approvals from higher authority. The goal of the contracting officer is to make a sound business judgment using the information gathered.

If evaluation criteria are changed after the solicitation is issued, protests may result. [Ref. 5] If a change in requirements, technology, or marketplace conditions occurs, the solicitation may be revised by amendments to the Request For Proposals (RFP). However, new proposals and corresponding best and final offers (BAFOs) will have to be submitted by offerors, lengthening the procurement cycle and increasing contractor bid and proposal (B & P) costs. A protestor may charge that the criteria were changed to favor an offeror that could not win the award otherwise. The use of draft RFPs and presolicitation bidders conferences have

been helpful in identifying such changes prior to issuance of the RFP.

Technical evaluations conducted by the requiring activity should be documented and include the basis for evaluation. [Ref. 5] To determine a competitive range, an analysis of technically acceptable and unacceptable proposals should be made, including an assessment of each offeror's ability to meet the technical requirements. In determining a competitive range, the contracting officer can exclude those offerors having no chance of award. The contracting officer can award on initial proposals only if the award is made to the low-priced offeror. This decision should only be made for clear winners. If there are questions or concerns about price or technical matters, then the contracting officer must hold discussions with all offerors remaining in the competitive range. Meaningful discussions must be held with all offerors, informing each contractor of significant deficiencies in its proposal. The technical evaluation personnel can guide the contracting officer in initiating discussions with a contractor if areas within the proposal can be pointed out for improvement. The technical evaluators can list specific questions which need to be cleared up in discussions. Should the technical evaluation team believe that there is no likelihood of improvements in proposals

arising from discussions, this opinion can be relayed to the contracting officer. In short, the Government needs to discuss these details so it can make an informed decision in selecting the offeror who will provide the best performance. In grading each technical proposal, a summary of matrix or qualitative rankings is made in relation to the best rating possible. A summary of findings, with narrative comments addressing the technical ratings, is then synopsised.

In making a determination of contractor responsibility, the contracting officer can analyze the contractor's performance record and record of integrity and business ethics. [Ref. 5] A preaward survey (PAS) can be conducted in which a Government plant representative office or the contracting officer's own PAS team visits the contractor's plant to observe personnel, facilities, and indicators of financial backing. The Army and Air Force make extensive use of their own PAS teams in the ESS arena. Their PAS teams sometimes spend a week or more conducting a PAS at the contractor's site. If the contract calls for engineering support services to be performed at a Government facility, then a plant visit would be counterproductive. Thus the contracting officer has some latitude in using preaward surveys as an information gathering tool.

Evaluation criteria can be stated in terms of fixed weights or variable weights. [Ref. 5] Under a fixed weight

system, four factors such as price, management, technical capability, and prior performance may be chosen, with each factor worth 25 percent. Four factor subcategories may be worth 25 percent each. Under the variable weight method, there may be some factors, particularly price, that the Government does not want to fix. For instance, the importance of cost or price as a factor will become greater depending on the technical quality of the proposals. Although the Government may want technical to be the controlling factor, if two or more proposals are technically very close, then price often becomes the determining factor in making the award.

When the low cost, technically acceptable method (termed "go/no go") is used, each factor is deemed good or no good. [Ref. 5] A "go" on every factor is required to be considered within the competitive range of acceptable offerors. A General Accounting Office (GAO) decision ruled that if technical and management factors are "go/no go" in both areas, then the award will be made to the lowest priced offeror. Under the "go/no go" method, the source selection criteria must be user-friendly and employ an English language syntax fairly close to terms of act in the industry. In one instance, the SOW required a handgun to discharge 5,000 rounds successfully. It was ruled that if the rounds were

discharged successfully, the low-priced offeror won the award.

The source selection process allows the Government a great deal of subjectivity in maximizing its freedom as an evaluator. [Ref. 5] There is a tendency to have numerical scoring systems where numbers are tallied and the highest score wins. Disclosure of evaluation criteria and a concern for fairness are important considerations, as the Government's goal is to receive good offers. The SOW and the wording of Request For Proposals (RFP) sections L (Instructions to Offeror) and M (Evaluation Factors for Award) must be user-friendly in nature. In section L, the contracting officer asks for clear, detailed information sufficient to evaluate proposals in accordance with the source selection criteria. In section M, the evaluation criteria and their relative weight are stated. The contracting officer does not have to disclose whether scoring by numbers, colors, or adjectives will be used. Draft RFPs can be used to solicit industry input regarding the wording of the RFP. Sample work directives can also be included in the draft RFP for industry comment. In essence, the Government needs to articulate what it wants the offeror to perform while informing the offeror of how its proposal will be evaluated.

Once the evaluation criteria have been chosen, a scoring system must be selected. [Ref. 5] It is acceptable to rate proposals with adjectives or color schemes (blue, green, yellow and red, for instance, to denote outstanding, acceptable, marginal, and unacceptable ratings, respectively) instead of numerical scores. No matter which scoring system is used, there must be some discussion of the significance or meaning of the results of the tallied scores. The goal is for the contracting officer (or SSA for formal source selections) to be fully informed about the relative merits of the proposals. Thus narrative statements such as "good", "less good", or "poor" can be used by evaluators to amplify scores assigned to proposals. Numerical scoring does not necessarily transform the process into a more objective process. In one protest, 1000 available points were broken down into five-point blocks. The protestor unsuccessfully challenged the five-point blocks, saying the scorer could not differentiate between different offerors. GAO has ruled that a 10-8-5-2-0 scoring scheme for an evaluated subfactor is acceptable. GAO has also stated that technical scores must be considered by the contracting officer/Source Selection Authority (SSA) to determine the significance attached to scores given by evaluators. Thus the contracting officer/SSA must be fully informed about the relative merits of the

proposals if for some reason he or she does not understand the scoring schemes and what they represent.

In close calls, a fully informed decision takes on added meaning. [Ref. 5] If two contractors receive "blue" (outstanding) scores or one offeror receives 96 points to another offeror's 98 points, cost or price now becomes a very important matter in this "fully informed" issue. The contracting officer/SSA must now decide which proposal represents the best value to the Government. The contracting officer/SSA might decide that an offeror's quality assurance program or Government-furnished property program is superb, making the higher scores in either of these categories worth a great deal to the Government. If two proposals score out at 96 and 97 points respectively in a \$10 million procurement, it might cost the Government an additional \$1 million to obtain one extra point in scoring. In such cases, judgments have to be made about which offeror scored higher or lower in key evaluation factor/subfactor areas such as personnel, management, quality, and past performance. In evaluating resumes of program managers and other key personnel who will guide the work effort, the aforementioned blue/green/yellow/red scoring system can be used. An outstanding resume corresponds to a "blue" score. A highly experienced individual with poor education and no degree could be given a "green" score. Narrative comments could

include, "This employee was rated 'green' because of experience but degree is lacking." The contracting officer/SSA can then make a subjective award decision given this proposal evaluation input.

In a recent GAO case regarding color scoring schemes, two offerors each received twelve "blues" and two "greens" for past performance. [Ref. 5] The contracting officer then averaged these scores and rated both proposals "blue" for past performance. With both offerors receiving identical scores for technical merit, the low offeror then received the award. The protestor claimed that the color scoring schemes were too broad. He wanted the agency to use a strict numerical scoring system, assigning scores by points or half-points. The Comptroller General ruled that even numerical scoring systems are only useful guides to intelligent decision-making. They are not controlling in making an award because they often reflect the evaluator's disparate, subjective judgment. As long as the disclosed evaluation criteria are followed, it is acceptable to use adjectives, numbers, or colors for scoring schemes. Whatever scheme is used, the contracting officer/SSA has to be able to articulate the differences or similarities in the proposals.

In providing input to the contracting officer/SSA, evaluators should provide all the information available that

will affect discussions or award. [Ref. 5] If a member of the evaluation team views a resume that looks better than a person he knows, the evaluator's misgivings should be included in the narrative input to the contracting officer/SSA. If the evaluation team believes it can obtain better proposals than what they have seen, it should recommend to the contracting officer that discussions be held. In summary, an informed contracting officer/SSA can make a fair decision in which the data obtained support the conclusions.

E. SOURCE SELECTION ISSUES

During field interviews with cognizant Government and industry personnel, a number of source selection issues were raised. The research effort was narrowed down to the 12 following issues generally perceived by both parties to be major problems in the ESS contracting process.

1. Should the industry practice known as uncompensated overtime be banned or regulated?

Uncompensated overtime (UOT) occurs when services firms bid for contracts in which professional employees will work more than 40 hours a week yet are compensated based on a 40 hour work week. This is done in an effort to obtain a competitive edge by lowering the hourly rates companies offer the Government on contract proposals. When contractors compete to provide services to the Government, their

proposals include hourly costs of salaried employees, such as engineers, scientists, and analysts [Ref. 6:p. 5]. As shown in Appendix B, the billable amount to the contractor remains the same if a salaried professional employee works a standard 48 hour work week instead of a 40 hour work week [Ref. 4:p. 10]. Whereas hourly-wage, non-engineer employees subject to the Service Contract Act (SCA) of 1965 would receive overtime pay for hours worked in excess of 40 per week, salaried engineers and other professional employees exempt from the Act work more hours while receiving the same salary when their work week exceeds the 40 hour per week standard. This controversial bidding practice has become commonplace in today's highly competitive ESS arena. Despite efforts to reach an agreement on the handling of UOT bidding, DOD officials and representatives of the professional and technical services industry remain far apart in reaching a compromise.

The DOD Advisory Committee on Uncompensated Overtime was mandated by Congress in the 1989 Defense Authorization Act. The committee was tasked with the following requirement:

. . . establish criteria to ensure that proposals for contracts for professional and technical services are evaluated on a basis which does not encourage contractors to propose mandatory uncompensated overtime for professional and technical employees . . . (Section 804 of Public Law 100-456).

Through the use of UOT bidding culminating in contract awards, contractors have forced their professional and

technical employees to work an average of 43 to 45 hours per week without the benefit of overtime pay. Industry groups say DOD, particularly the Navy, suffers from this practice because it puts undue emphasis on price over quality. Industry also contends that extending the work week beyond the long established 40 hours per week standard leads to subsequent fatigue, demoralization, errors, and gradual degradation of the quality of professional services rendered. While contractors admit they are not being forced to bid UOT, they generally claim that the contractor who fails to bid UOT will be underbid by the competition. Their feeling is the Government will choose the offeror with the lowest composite average hourly cost.

The present position of DOD is not to outlaw the use of UOT on ESS contracts, an outcome industry desires. Eleanor Spector, Deputy Assistant Secretary of Defense and chairwoman of the special DOD Advisory Committee on Uncompensated Overtime, has stated that industry's concerns are "overblown. They want us to formally disallow it by regulation. That would be interfering with the competitive marketplace." [Ref. 7:p. 1] Mark Shultz, executive director of the Professional Services Council (PSC), Washington, D.C., countered that "it is highly appropriate for the Pentagon to regulate and prohibit this practice as a matter of policy." [Ref. 7:p. 1-2]

Several contractors interviewed by the researcher contest Ms. Spector's assertion that "industry is now generally offering 43 to 45 hours per week per key employee." These contractors assert offerors are presently bidding an average 48 to 50 hours per week per key employee compared to an average 42 to 44 hours per week awarded. Furthermore, they contend that firms proposing long work weeks, for instance 50 hours, are not always delivering these hours once they receive the contract award. One contractor tasked with performing contracted overtime hours allegedly had no employees answering phones on Saturdays nor on weekdays before 7:30 a.m. or after 4:30 p.m. Industry also asserts that while the Defense Contract Audit Agency (DCAA) can conduct time card checks at a contractor's plant, those hours worked by an employee travelling on a plane cannot be verified. Thus many contractors assert that UOT offers no "free lunch" to the Government. They see the UOT issue as a "smoke and mirrors game" that can hurt defense readiness if the requiring activity cannot obtain satisfactory work from the awardee.

2. The Navy should reveal more information about source selection evaluation factors and subfactors used in ESS contracting.

Several contractors that have dealt with the Army, Air Force, National Aeronautics and Space Administration (NASA), and other Federal agencies state that Section M

(Evaluation Factors For Award) of most Navy RFPs is far less detailed than that of the other Services and agencies. Although each contracting activity is tasked with revealing the source selection criteria and their relative weights, there is no one standard method of articulating this requirement. Navy contractors particularly want to know the actual percentages used for the relative weights of cost/price, technical, management, past performance, and other applicable evaluation criteria. They also want the Navy to reveal more narrative details about the relative importance of the evaluation factors and subfactors. One contractor stated that the Navy "should tell me what they want so I can propose what they want."

3. The Navy does not perform cost realism analyses for ESS contracts effectively.

Industry contends that few Navy activities do an adequate job of assessing the cost realism of contractor proposals. First, industry asserts that requiring activities should develop an independent cost baseline to use as a yardstick for evaluating contractor proposals. Many contractors assert that a large number of Government buying personnel have never been to a cost/pricing course and do not understand how a contractor builds cost, overhead, general and administrative (G & A) expense, and profit into a proposal while complying with cost accounting standards. They say that if a requiring activity's cost estimating data

base supports a \$20.00 per hour labor rate for a particular engineer, a \$7.00 per hour proposed rate for that engineer indicates that contractor is "fudging" costs. Industry also asserts that some contractors are proposing \$10.00 per hour for a non-professional labor category subject to a Department of Labor (DOL) wage determination of a \$25.00 per hour minimum wage. In some instances, contractors dispute the wage determination, saying they will take up the matter with DOL. Furthermore, industry says there is no penalty for pulling such ploys or bidding too low. Some contractors believe that offerors submitting proposals well outside the requiring activity's cost baseline should be eliminated from the competitive range due to nonresponsiveness. However, some contractors feel "the Navy's bark is worse than its bite" in the manner its contracting activities analyze the cost realism of proposals.

Government personnel generally assert that industry is its own worst enemy in the cost realism arena. They assert offerors should submit good, "above board" cost figures mirroring reality in their initial proposals. The burden is on industry to cease the "gaming" of figures contained in cost proposals, many government personnel feel.

4. Gaming techniques are employed by contractors when significantly high weight is given to cost in the evaluation criteria. Contractors can be expected to provide very optimistic cost estimates when the evaluation criteria is low cost, technically

acceptable or when cost is weighted at 40 percent or higher in best value procurements.

Both Government and industry agree that the low cost, technically acceptable procurement method is valid for buying "low tech" services where little or no engineering labor effort is required. Contractors assert that while the low cost, technically acceptable approach may be easier to award than the best value method, it will lead to more "buying-in" proposals from contractors submitting "lowball" bids.

Industry believes the procurement of professional and technical services is suffering from a progressive deterioration of the quality imperative in favor of the low bid. Many contractors assert that the Navy should weigh cost at no more than 30 percent in best value procurements, as was the case prior to the tight budgets of the mid-1980s, when cost was often weighted at ten to 30 percent. Some Government personnel counter that contractors too often employ "brochuremanship" in packaging their proposals and thus making it difficult to discriminate between the relative merits of technical proposals that are very close to one another. Still, other Government personnel have a preference for the best value method. Industry believes the use of the best value evaluation and selection process strengthens the contracting officer's role in the source selection process, allowing an informed business to be made. Industry also believes the best value method incentivizes contractors to

Several contractors asserted that the formal source selection process, where an informed SSA makes the award decision, fosters better quality awards in high dollar value procurements while adding greater fairness and objectivity to the award decision. One contractor recommended that commanding officers of Navy Regional Contracting Centers (NRCCs) could serve as SSAs in a similar manner that Army and Air Force Generals serve as SSAs in high dollar value procurements.

6. Navy procurement administrative lead time (PALT) has continued to lengthen due to the growing number of regulations and the increasing complexity of the competitive procurement process.

Industry feels the Navy should be able to award contracts within six to nine months after release of an RFP, as the Army and Air Force have been consistently been able to accomplish through strict adherence to contracting milestones. Navy personnel counter that the Army and Air Force have a large number of dedicated civilian and uniformed personnel that allow them to realize better PALT than the Navy. One contractor suggested that Navy business clearances be approved shortly after the competitive range determination so that PALT could be reduced. Another recommendation is that the Navy should issue a draft RFP at the 18 month mark of a three-year contract that will be recompeted. Industry also believes contracting officers should allow sufficient time for offerors to respond to issued RFPs. A 120 day

so that PALT could be reduced. Another recommendation is that the Navy should issue a draft RFP at the 18 month mark of a three-year contract that will be recompeted. Industry also believes contracting officers should allow sufficient time for offerors to respond to issued RFPs. A 120 day response period chosen up front, for instance, is more effective than the practice of granting 30 day extensions for offerors to submit proposals.

Industry also contends that the often multiyear Navy acquisition cycle for ESS has increased the use of omnibus type contracts, otherwise known as "umbrella" contracts. These contracts, composed of generic SOWs, have delivery orders issued for any number of independent and unrelated technical organizations at any given time. Industry contends that reduced PALT would allow the use of separate requirements contracts rather than multiyear omnibus type contracts.

7. The Navy has not captured past performance history in situations requiring specialized and high-level technical talent.

Both Government and industry are in agreement that past performance is a valid source selection criterion. The notion is to reward outstanding performers and penalize poor performers so that overall quality will be enhanced. Government contracting activities have been slow to capture this past performance data and use it in a manner that will

be fair and objective to offerors while limiting the potential for protests. The Air Force has taken the lead with its effort to create a Contractor Performance Assessment Report (CPAR) data base to capture ESS performance data, share these data among Air Force hardware commands, and employ past contractor performance as a significant source selection criterion. Several Navy activities are making strides toward developing such a system, but other than the Navy's Red-Yellow-Green one-year test program, progress has been slow.

8. Should Total Quality Management (TQM) principles be incorporated in evaluation criteria for ESS contracts?

Incorporation of statistical process control, continuous process improvement, and other tenets of Total Quality Management have been incorporated in contracts for production of hardware but have yet to play a major role in ESS procurements. Both Government and industry have encountered difficulty in applying what many call a "philosophy" into a services environment where relatively few end products are produced compared to a manufacturing environment.

9. Should the contracting function be centralized or decentralized for the acquisition of mission-specific equipment and services, including research and development (R & D)?

This issue was brought to the attention of the researcher by a number of Government personnel. Several

Government personnel interviewed had strong feelings that mission requirements were not being met best when the contracting function was located at a site apart from the requiring activity's location. One interviewee stated:

Centralization of the contracting function, although appearing to be efficient with the consolidation and concentration of resources in Centers of Excellence, tends to be parochial and often is not productive in terms of support. The involvement and interplay between program manager and contracting officer throughout the preaward process, as envisioned by the Packard Commission, is difficult if not impossible to achieve because of the distance, both philosophically and geographically, between the contracting office and the client.

A number of Government personnel interviewed were equally adamant that the centralization of the contracting function to a high degree is the best use of Government resources and allows more efficient procurement.

10. The Government should open a better dialogue with prospective bidders through greater use of prebidders conferences and draft RFPs requesting industry input to solicitations.

Industry personnel interviewed were of the strong opinion that these two tools were superb techniques in fostering communication between the Government and offerors prior to the release of an RFP. Both parties cited the use of draft RFPs as a "superb mechanism" for obtaining industry input on the wording of SOWs, clarification of sample work directives, and other contract provisions proposed. Many contractors felt the Government listened to their input and acted upon their suggestions, as evidenced in the wording of

RFPs released. Both Government and industry interviewees felt the enhanced communication obtained through the use of prebidders conferences and draft RFPs resulted in a RFP largely free from modifications that would in turn result in multiple rounds of best and final offer (BAFO) submissions.

11. The Navy needs to improve its debriefing conferences for offerors not awarded a contract.

Navy contracting activities received a large amount of criticism from industry for the way most of its contracting activities conducted debriefing conferences. Although some Navy debriefing conferences received good marks, the overall quality of the feedback provided to offerors was deemed substandard to the typical debriefing conducted by the Army or Air Force. However, not all Army and Air Force debriefings received high marks from industry.

Industry characterized excellent debriefings as those which provided detailed written and oral feedback as to the relative strengths and weaknesses of offerors' proposals. Excellent debriefings were also described by industry as nonconfrontational in tone. Poor debriefing conferences were characterized by no written or oral feedback and tight-lipped debriefing officials who did not want to answer questions posed by losing offerors.

12. The current Federal Acquisition Regulation (FAR) should be amended to provide adequate recognition of the technical and services industry and guidance on the procurement of these services.

The Professional Services Council estimates that the current FAR only covers about five percent of the dollars spent for services. The professional and technical services industry generates over \$200 billion annually in revenue. Of that total, the Navy procures approximately \$8 billion annually in engineering support services. The outlook for the future is that ESS contracting actions and dollars awarded will rapidly increase. The feeling from several Government and industry interviewees is that services do not receive the "visibility and glamour" of hardware acquisitions, thus little policy is directed toward services in the FAR.

In the absence of FAR coverage, periodic Navy policy declarations on such issues as source selection and cost realism, whether intended or not, appear conflicting to some contracting activities and requiring activities. As a result, some activities feel their ability to exercise sound judgment based upon unique procurement situations has been "handcuffed." They feel the award should be determined locally by contracting individuals most familiar with the requirements and should be based on the best interests of the Government, all issues considered.

F. SUMMARY

This chapter has examined the development of acquisition plans and source selection criteria used in evaluating

proposals. Twelve pertinent issues in the ESS arena, including cost realism, bidding of uncompensated overtime, and growing procurement action lead time, were addressed from the viewpoints of Government and industry interviewees. Chapter IV will address the researcher's data analysis and findings.

IV. DATA ANALYSIS

A. INTRODUCTION

This chapter presents the researcher's analysis and findings pertaining to the 12 key issues explored in Chapter III. In addition to conducting field and telephone interviews with cognizant Government and industry personnel, the researcher obtained ten Request For Proposals (RFPs), two draft RFPs, and six source selection plans for engineering support services (ESS) procurements from interviewees.

To obtain perspectives that might enhance Navy procurement of ESS, the researcher also interviewed cognizant Army, Air Force, and National Aeronautics and Space Administration (NASA) personnel experienced in ESS procurement for their respective agencies. Several of the six contractors interviewed had submitted offers or had been awarded Army or Air Force contracts. As a result, the manner in which the Navy conducted source selections was often compared by these contractors to Army and Air Force solicitation and evaluation procedures.

Navy personnel attached to the Office of the Assistant Secretary of the Navy (Shipbuilding and Logistics) (ASN (S & L)), Naval Supply Systems Command, Naval Air Systems Command, Naval Sea Systems Command, and the Military Sealift Command were interviewed along with a cross section of Navy

Field Contracting System activities. Although some specific source selection information was considered too sensitive by these activities to discuss, interviewees gave candid opinions on key source selection issues and supplied generic source selection plans, acquisition plans, and users' guides for existing ESS contracts.

B. ANALYSIS

The following is the researcher's analysis of the 12 key source selection issues noted in Chapter III:

1. Should the industry practice of uncompensated overtime be banned or regulated?

The researcher found both Government and industry personnel to be highly opinionated about this key ESS issue. A representative sample of the comments expressed by Navy personnel about this matter follows:

1. Uncompensated overtime (UOT) is a matter of pricing. We do not encourage or discourage UOT. Eleanor Spector has put the issue to bed. We want to make sure we get what we are paying for with UOT, so we treat it as a cost realism issue. Eleanor Spector says we won't get in the middle of industry's pricing decisions.
2. Uncompensated overtime is a nightmare in contract administration. We have problems with contractors charging 40 hours first, with five hours of uncompensated time coming later. The contractors are trying to increase their cash flows.
3. Is it a Government function to police industry practices? My personal opinion is that Government should establish a level playing field with respect to UOT.

4. We have seen work weeks as high as 52 hours proposed. We have strong doubts about proposals of 45 hours per week or more.

A representative sample of the comments expressed by Army, Air Force, and NASA personnel concerning UOT follows:

1. A Congressional staffer was wondering why the Army doesn't have a problem with UOT like the Navy has. We have never had any offers for UOT at this activity.
2. The Army has no policy with respect to UOT. It would get us down the path to starting to manage companies. As long as firms are offering against the same requirement, it's their business. If a contractor proposes a standard work week exceeding 40 hours, we ask whether it is the standard way of running their company. In a couple cases, there was no history or credibility supporting a longer work week.
3. With UOT the Air Force will have the contractor spell out how they will do it. We may tell offerors that the normal work week is 40 hours. We may set a 44 hour work week sometimes.
4. We have seen UOT in a couple small business proposals. DCAA will look at whether UOT is a company policy that is being adhered to.
5. In one RFP, we had all offerors propose a total of 2,000 hours of UOT in each year of operation. Offerors were to furnish the company overtime policy, including who is paid overtime and the rate, and describe the accounting treatment of overtime. We told the offerors in the RFP that it was the Government's intent to evaluate the basic proposals based upon 53,000 productive labor hours of effort for each of the five contract years. Offerors were required to submit their proposals based on this estimate, but could submit an additional, alternate approach if considered more beneficial to the Government.

A representative sample of the comments expressed by industry concerning UOT follows:

1. UOT is a symptom of an unprofessional culture. If a contract requirement has any sophistication, NASA won't allow UOT. A work week exceeding 40 hours may be

productive for six to twelve months. Beyond a year of contract performance, there are questions about UOT.

2. We are working a 50 hour work week at our firm. The problem is not the work week. A firm is essentially forced to bid UOT. It can't remain competitive otherwise.
3. Bidding UOT is a form of smoke and mirrors. The long term implications of this practice are not good for requiring activities nor the professional and technical services industry.
4. Uncompensated overtime is one of several gimmicks contractors have devised to win awards.

Although Government and industry have not resolved the matter of whether UOT should be banned or regulated, the researcher found general consensus between both parties that standard work weeks of 45 hours or more for professional employees are undesirable for both Government and industry. A point of diminishing marginal returns is reached where the benefits of the "free" overtime hours the Government receives are offset by the difficulty to quantify costs of Defense Contract Audit Agency (DCAA) oversight of UOT, declining employee morale, reduced surge capability, and increased potential for sloppiness or errors in work performance. One Navy activity requires contractors to guarantee the delivery of uncompensated overtime proposed and also specify whether UOT is being used to reduce direct labor costs or overhead costs. Navywide adoption of this practice is recommended to help insure greater cost realism in proposals.

Navy activities should regulate UOT by stating in the RFP that all offers will be evaluated based on a standard work week. Although the 40 hour work week is the general yardstick for white-collar professional employees in the business sector, the Navy should not be prevented from requiring a longer work week, such as 44 hours, if the needs of the requiring activity are best met through that level of effort over the life of the contract. Standard work weeks of 45 hours or more should be avoided unless requiring activities can perform a cost-benefit analysis that justifies its use in meeting mission requirements.

By requiring offerors to submit their proposals based on the standard work week the Navy tailors to that acquisition, a "level playing field" will be established which will discourage "gaming". Offerors can be advised that an additional, alternate approach can be submitted if considered more beneficial to the Government. Several Federal agencies have used this practice of specifying a standard work week based on Government estimates to perform the required effort.

2. The Navy should reveal more information about source selection evaluation factors and subfactors used in ESS contracting.

In examining Section M (Evaluation Factors For Award) of ten RFPs issued by Navy, Air Force, Army, and National Aeronautics and Space Administration (NASA) activities, the researcher found that Navy RFPs contained little discussion

of evaluation subfactors compared to those of the Army, Air Force, and NASA. Section M page lengths in Navy RFPs often vary from one to three pages in ESS procurements compared to three to nine pages typically found in Army, Air Force, and NASA buys. In one instance. Section M of one Navy RFP was less than one page length.

Although page length is not all-important, contractors feel that a well-written Section M articulates what the Government deems important in evaluating proposals and awarding a contract. Section M of some RFPs explicitly state the weighting of cost, technical, and management factors. Subfactors within these evaluation factors receive no mention in some RFPs while other RFPs detail the rationale behind the subfactors and their relative importance in descending order. Likewise, some RFPs will go into great detail about the mechanics that will be used in evaluating offers for award purposes while other RFPs are terse about such matters.

Each Navy contracting activity should tailor the wording of Section M of RFPs to each procurement. The tendency in the Navy is to use a "boilerplate" Section M taken from a generic Source Selection Plan. There is no one method to articulate the evaluation factors for award to offerors. However, RFPs that disclose relative weights of factors, narrative discussion of subfactor elements and their weights, and details of evaluation methodology enhance communication

between Government and industry. An appropriate Evaluation Factors For Award (Section M of the RFP) is offered in Appendix C.

3. The Navy does not perform cost realism analyses for ESS contracts effectively.

Cost realism analysis is a controversial issue in the ESS arena. Price or cost to the Government must be included as a specific evaluation criterion in every procurement. The Navy usually scores each cost or price proposal for cost realism whereas Army, Air Force, and NASA contracting activities do not. Instead, these non-Navy activities often state, "Award will be based on an integrated assessment of each offeror's ability to satisfy the requirements of the solicitation." When a best value approach is used for ESS procurements, the Navy's ASN (S & L) has decreed the use of a technical/cost ratio of 60/40 as the norm. Instances where a 70/30 technical/cost ratio are proposed must be fully justified. The guidelines for best value Navy Field Contracting System (NFCS) ESS acquisitions follow:

Technical/Cost Ratio 70/30 - 60/40 Usually "White Collar" or Professional Services" fairly well defined with little need for alternate technical or management approaches. Involves great use of individual discretion/judgment/insight rather than application of purely mechanical skills. A premium is considered acceptable to obtain added value/benefit often associated with greater personnel/corporate experience. [Ref. 8: Attachment (D) to Enclosure (1)]

The guidelines for NFCS ESS acquisitions procured under the low cost, technically acceptable method follow:

"Low Cost, Technically Acceptable" - This approach first identifies all proposals meeting a stipulated minimum level of technical acceptability, then awards to the lowest cost proposal within the group. It is not a "greatest value" approach since "scoring" of proposals in accordance with a predetermined ratio is not employed. This approach is most frequently employed for standard production contracts and "blue collar" or "technical" services characterized by well defined SOWs. It should not be inferred that this style evaluation necessarily considers technical factors "less important" than cost, or than shown in "greatest value" approaches. Rather, it may be employed whenever minimum technical acceptability may be narrowly and explicitly defined. It should be remembered that "minimum" standards may be set as high as necessary to meet the Government's needs. [Ref. 8: Attachment (D) to Enclosure (1)]

Cost realism analysis is important in Navy ESS procurements because of the preponderance of cost-type contracts used. A contractor may submit an overly optimistic low-cost proposal which wins the award, but the Government ends up paying for all allowable, allocable, and reasonable costs incurred in a cost reimbursable contract. Many Government personnel interviewed by the researcher referred to this practice as "high-tech technical proposals submitted with low-tech cost proposals". Industry retorts that the Government continues to award to the low-cost offeror regardless of how off-base and unrealistic a proposal might appear.

Nearly every Navy activity contacted by the researcher approaches cost realism differently. Some activities keep extensive local records on current and historical labor rates paid by ESS contractors within a geographical area. If the

average annual salary for a senior engineer is \$65,000 in a geographical area, an hourly rate equating to a \$40,000 annual salary denotes a "lowball" bid for that labor category. Other activities use Department of Defense (DOD) or Service plant representative office field pricing reports and Defense Contract Audit Agency (DCAA) audits extensively when analyzing cost proposals. A variety of methodologies are used by Navy source selection teams to develop Independent Government Cost Estimates (IGCEs) or Most Probable Cost Estimates (MPCEs). For nonprofessional personnel subject to minimum wages imposed by the Service Contract Act, wage determinations provided by the Department of Labor (DOL) provide a yardstick to compare whether a labor rate proposal complies with the law.

ASN (S & L) has provided the following guidance on cost realism analysis to its acquisition personnel:

COST REALISM ANALYSIS: Use of competition as a business strategy implies fair and impartial source selection procedures. Recent changes to the way we do business, such as award on initial proposals, when appropriate, and not requiring cost or pricing data certifications or audits when competition is anticipated, bring added responsibility for both contracting and technical personnel involved in making award decisions. In competitive situations, where award may be made on initial offers, or where technical discussions may be required but award is envisioned without use of cost or pricing data, the cost realism analysis (CRA) must be conducted in a comprehensive and impartial manner. The CRA used will be necessarily different for each award and must be carefully planned. The CRA must be carefully reviewed to ensure it provides no advantages or disadvantages to any of the competitors. The review must be comprehensive, paying attention to all provisions of

the Request for Proposal which offerors must comply with and ensure that all competitors have an equal opportunity to comply. While there may be differences between contractors which allow better scoring, there should be no aspects of the CRA which unfairly provide an advantage to any competitor. [Ref. 9:p. 1]

AWARD TO THE LOWEST BIDDER? Occasionally we still hear of a procurement activity stating it is their policy to make award strictly to the lowest bidder. This kind of statement results in industry allegations that the Navy exhibits a "low-bidder" mentality and assertions that the Navy is not concerned with quality. The Competition Advocate General has always stated that the objective of competition is to obtain the required quality of goods and services at the best price obtainable. Attainment of the required level of quality in both goods and services must remain our paramount objective. [Ref. 10:p. 1-2]

UNREASONABLY LOW HOURLY RATES ON CONTRACTS: Recent reviews of Navy competitively awarded support service contracts identified instances of contracts with extremely low personnel compensation rates. In some cases the contractors have acknowledged offering rates well below that which will actually be paid. They also acknowledge the requirement to deliver the quality of personnel specified in the contract even though the Government will pay a rate well below what will likely be paid to employees.

This practice is a form of buying-in. While not prohibited by procurement regulations, it is a practice which can distort the competitive process and raise questions about the quality of services the Navy is buying. For these reasons, the practice should not be encouraged.

In order to protect the Government's interest, Navy contracting activities should include in each cost type contract solicitation for support services notification that the realism of personnel compensation rates will be a part of the proposal evaluation. For fixed price labor hours, or time and material type contracts, a cost realism may be appropriate where proposal evaluation considers both price and technical factors. In all cases, the solicitation will state that unrealistic rates will be considered in the risk assessment and may result in a reduced technical score.

Discussions must be held with contractors proposing unrealistically low rates, (assuming contractors are in the competitive range) and such contractors will be required to:

- demonstrate an understanding of the requirement for which unrealistically low rates are proposed;
- address the ability to provide the caliber of labor required;
- demonstrate the capability to absorb the labor cost differential between the low rates proposed and the probable real cost of the labor to meet Navy requirements; and
- understand that the Navy fully expects to order the effort under the low priced rate categories and that the contractor's performance will be carefully assessed to ensure that the appropriate caliber of support was provided. In addition, it should clearly be highlighted to such contractors that options will only be exercised if the contractor's performance is fully satisfactory.

The Navy expects to pay fair and reasonable prices for required supplies and services. Even after the steps outlined above are implemented, there still may be instances in which a contractor engages in the practice and is evaluated as the successful offeror. In such instances, the Navy will award the contract, order the low price support effort and monitor it with great care to ensure that we obtain the caliber of support we need and contracted for regardless of the contractor's pricing decision.

All support contract evaluations and clearances are to include a review which addresses the above issue. [Ref. 11:p. 1-2]

By comparison, the Air Force policy on cost realism for acquisitions exceeding \$5 million follows:

COMPARATIVE COST ANALYSIS: The reasonableness, realism, and completeness of each contractor's cost proposal should be explained. This section includes data pertaining to cost or price analysis, independent cost analysis, total cost to the government, Most Probable Cost, impact of technical uncertainty on cost or price, Life Cycle Cost, or other cost considerations as

appropriate. A summary track of costs from initial proposal through BAFO will be provided. Confidence that can be placed in the cost or price estimate and financial risks should also be explained. [Ref. 12: Appendix BB, Attachment 14]

The aforementioned Navy and Air Force policy guidance thoroughly addresses the aims of cost realism analysis. One of the problems encountered in practice is ensuring a bona fide independent Government cost estimate (IGCE). A Navy interviewee stated that one IGCE submitted consisted of a word-for-word rendition of a contractor's cost proposal where the contractor's letterhead was replaced with a Government letterhead. This false IGCE was subsequently detected by members of that source selection team.

Industry has criticized the Navy heavily for failure to recognize cost proposals containing "throwaway" labor rates. In one contract award, the winning low bidder on a time and materials type contract bid \$4.05 per hour for clerical labor. This "fully burdened" fixed hourly rate includes profit, overhead, and general and administrative expenses. The nonburdened wage to be paid to clerical personnel would approximate \$3.25 per hour, a figure both below the Federal minimum wage and less than what fast food workers make. To make up for the loss the contractor would incur on clerical effort and a couple other "throwaway" categories, the hourly rates for several senior engineering and technical personnel were hiked above market norms. The offeror successfully

manipulated the wage rates so that the overall composite labor rate submitted in its cost proposal was lower than other competitors. By avoiding the use of clerical personnel and other "throwaway" personnel and by maximizing the use of high profit margin senior personnel in task accomplishment, the contractor planned on "gaming" the system in contract performance. In one case, the Military Sealift Command was upheld by the General Accounting Office (GAO) when it rejected the low offeror's proposal for employing "throwaway" rates. A synopsis of the GAO decision follows:

GAO DECISION: In Stanley Associates Inc. B-232361 dated 12/22/88. the Military Sealift Command (MSC) was justified in rejecting the low offeror who, on a contract for engineering services, proposed charging disproportionately low rates for junior analysts and high rates for all other positions, thereby creating an unacceptable cost risk. It was MSC's view that the protestor's pricing structure created an incentive to direct the work toward the higher-priced categories, although the solicitation had contemplated that the junior analyst category would make up most of the hours to be ordered. The protestor argued that MSC was protected against such manipulation of the task orders, since the contract gave the Government the right to direct the labor category mix. Disagreeing, GAO pointed out that it is the contractor who submits the specific proposals for performing the tasks identified by the agency. MSC could specify the labor mix, but would rely heavily on the contractor's assessment of what would be required to accomplish the tasks, GAO explained. Further, although the agency would try to control the labor mix, the fact that there is a disproportionately low rate in the most significant labor category created the likelihood of disagreements over the task orders, a factor the agency is entitled to consider in deciding whether to accept this type of offer. Although the agency never specifically identified the low rate as a deficiency, it did ask the protestor to verify the rate and also issued two solicitation amendments emphasizing the agency's authority to specify the labor mix.

Further, in at least two oral negotiating sessions the problem of disproportionately low rates was discussed. Hence, the protestor had sufficient notice that the agency was concerned about its rates in general, and the low junior analyst rate in particular. [Ref. 13:p. 1-2]

Industry personnel interviewed by the researcher offered the following suggestions to improve cost realism analysis in Navy ESS contracting:

1. When formulating an IGCE, develop a baseline to compare with cost proposals. Understand how cost, overhead, general and administrative expense, and the use of cost accounting standards are built into contractor proposals.
2. Maintain records of past cost performance by contractors.
3. Maintain market data bases.
4. Identify unusual departures from reasonable norms.
5. Understand the real impact of unusual devices to regulate costs, such as uncompensated overtime.
6. Question unusual modifications to financial models, such as no or low fee, low general and administrative (G & A. expense and low fringe benefits.

The researcher believes the six aforementioned recommendations have merit. Like most Government agencies, the Navy has been slow to make strides in capturing past performance data for use as an ESS source selection criterion. Likewise, market data bases are virtually nonexistent. DOL has access to various market indices but this information is not shared with other Government agencies. An ex-Navy contractor employee interviewed stated, "The Naval Air Systems Command (NAVAIR) has reams of data to

tell you what an airplane should cost. For ESS, however, the Navy lacks good data bases to provide a good basis for cost."

The four other recommendations cited above have been used to various degrees by Navy agencies. To streamline its guidance on cost realism. ASN (S & L) should borrow heavily from the aforementioned Air Force "comparative cost analysis" procedures contained in Air Force Regulation 70-30, dated 27 April 1988. By evaluating the reasonableness, realism, and completeness of each contractor's proposal and developing an independent Government cost estimate, Most Probable Cost, and technical uncertainty impact statement on cost, Navy cost realism analyses can be conducted in a more uniform manner while tailoring each analysis to the services being acquired. ASN (S & L) should also explore the possibility of obtaining Department of Labor (DOL) market indices and related ESS data for use by source selection teams at Navy systems commands and field contracting activities. Lastly, the progress of NAVAIR's efforts to incorporate ESS data into a data base should be assessed to determine whether data base information management is an efficient and effective tool that can be applied elsewhere at Navy contracting activities.

4. Gaming techniques are employed by contractors when significantly high weight is given to cost in the evaluation criteria. Contractors can be expected to provide very optimistic cost estimates when the evaluation criteria is low cost, technically acceptable or when cost is weighted at 40 percent or higher in best value procurements.

Charges of "gaming" are not confined to low cost bidding practices or the use of uncompensated overtime. Industry says contractors are submitting distorted bids, "bait and switch" resumes, and distorted resumes. "Throwaway" labor categories, unrealistically low overhead cost centers, and creative accounting practices round out these "smoke and mirrors" ploys. Lastly, industry argues that real costs do not go away and may take the form of project overruns or underdelivered hours.

The unanimous sentiment among the contractors interviewed is that "low cost means everything" to the Government when the evaluation criteria is low cost, technically acceptable or when cost is weighted at 40 percent or higher in best value acquisitions. Several Navy personnel and one Army interviewee noted that because technical evaluation teams often find it hard to "discriminate" between the relative merits of highly competitive technical proposals, cost often becomes the deciding issue in determining the award. Prior to tight DOD budget constraints which began in 1984, most Navy ESS procurements weighted cost at 30 percent. The increased use of low cost, technically acceptable ESS buys coupled with ASN (S & L) policy of cost to be weighted at 40 percent or higher has increased price competition dramatically. Industry believes that offerors other than the low bidder are doomed to be losers in Navy ESS

buys whereas other Federal agencies are perceived to be more concerned about quality and other non-price considerations.

The chief recommendations offered by industry are twofold. First, the Navy should greatly curtail the use of low cost, technically acceptable contracting in acquisitions having some degree of engineering expertise required. Second, the Navy should use technical/cost ratios of 70/30 or lower rather than the mandated 60/40 norm presently used in best value buys. Industry believes that greater emphasis on quality and less emphasis on price will result in less "gaming" and an improvement in the professional and technical service industry's reputation.

Among Navy contracting and technical personnel interviewed, support for the best value contracting method was widespread. One interviewee said the Navy should use Invitations For Bids (IFBs) for "low tech" buys employing the low cost, technically acceptable method. He also stated that the Navy's use of RFPs indicated a historical willingness to reward contracts to offerors submitting superior proposals with other than low cost bids. Now, "some RFPs are saying that a technical proposal is not desired." Some Navy activities state in Section M (Evaluation Factors For Award) of RFPs that offers 30 percent higher than the lowest reasonable and realistic offer will be considered in instances where quality acquisitions are desired but funding

constraints place a limit on costs. A hybrid of the low cost, technically acceptable method and the greatest value method results.

The ASN (S & L) draft memorandum shown in Appendix A proposes to do away with scoring of cost proposals in best value buys. This policy should be adopted on a trial program basis at minimum. The Army, Air Force, and NASA do not score price or cost. Although the contractor knows technical receives a greater weight than price, the basis of an award being "an integrated assessment of technical and price/cost" does away with the current technical/cost mix of 60/40. A narrative, fully justified assessment of each cost proposal lends itself to better analysis of cost realism. "Gaming" of technical and cost proposals must also be penalized through reduced technical scores and narrative analysis of unrealistic costs addressing deficiencies. Past performance must also become a major factor in award to reward superior performance and discriminate against poor performance. Past performance data can also provide a case-by-case basis for whether a requiring activity's objectives are better met by best value contracting rather than low cost, technically acceptable buys. With the Navy and industry stalemated on these issues, the aforementioned innovations offer promise in making better informed award decisions, meeting the quality

needs of requiring activities, and incentivizing contractors to cease "gaming" and focus on technical proficiency.

5. The Navy should use some form of formal source selection model for high dollar value procurements, as the Army, Air Force, NASA, and other Federal agencies do.

Greater use of the formal source selection process leads to better quality buys while adding greater fairness and objectivity to the award decision, several contractors asserted. The Navy uses contracting officers almost exclusively in ESS procurements, which typically range from \$10-50 million for most contract actions but sometimes run higher. Contractors that have dealt with the Navy, Army, Air Force, NASA, and other Federal agencies, believe that an informed Source Selection Authority (SSA), advised by a Source Selection Advisory Council (SSAC) and a Source Selection Evaluation Board (SSEB), makes better business decisions in high dollar value procurements than in source selections made by contracting officers.

Army and Air Force commands make heavy use of formal source selection procedures. The Air Force Systems Command (AFSC), for instance, delegates to all of its product division commanders the authority to act as SSA on research, development, test, and evaluation (RDT&E) buys less than \$311 million. In practice, product division commanders redelegate some of this authority to subordinate commands. For example, at the Air Force Space Systems Division, Los Angeles, Ca.,

the commanding general serves as SSA for acquisitions of \$40 million and up. He may also delegate authority to the vice-commander level for \$20-40 million procurements, which may in turn delegate colonels to act as SSAs for buys less than \$20 million. For buys valued at less than \$5 million, contracting officers or technical managers may make award decisions.

Army and Air Force SSEBs employ briefing charts in their presentations to SSAs in ESS procurements. In some cases, over 200 briefing charts were used to brief SSAs at the lowest assigned area for each source selection evaluation factor level. Prior to the SSA's award decision, the SSEB will brief the SSA on its competitive range determination and the recommended contract awardee. Factor levels, typically 16 in Air Force buys, are typically scored by color codes at every factor and subfactor level. Evaluation factors such as proposal risk, performance risk, subcontractor plans, small disadvantaged business plans, facilities, and secret clearances will then be included in the integrated assessment, which includes cost, made by the SSA.

One contractor recommended that commanding officers of Navy program offices and regional contracting centers serve as SSAs for procurements of \$10 million and up. However, unlike the Army and Air Force, the Navy has far fewer dedicated civilian and uniformed contracting personnel

resources to handle procurements of that magnitude. Some lower echelon commands might welcome the opportunity to serve as SSAs for ESS buys of \$10 million and up within their program offices. A common complaint voiced by requiring activities is the failure of contract awardees to deliver the level of quality performance demanded and expected. The present system of awarding contracts is not working and fails to meet operational needs impacting combat readiness. Although the argument against more formal source selections says they are more time-consuming and require more paperwork, they need not be so in ESS acquisitions. The Air Force tries to streamline its ESS formal source selections by keeping factors and subfactors to the bare minimum while making a strong effort to meet procurement administrative lead time milestones.

The Navy should initiate a pilot program within a contracting region to weigh the costs and benefits of formalizing source selections for awards that are currently decided by a contracting officer. For instance, requiring activities such as Pacific Missile Test Center, Point Mugu, Ca. and Naval Ship Weapon Systems Engineering Station, Port Hueneme, Ca., which both come under the contracting cognizance of Naval Regional Contracting Center, San Diego Detachment, Long Beach, Ca., deal with highly technical ESS requirements that lend themselves to more formal source

selections for large dollar procurements. If the delegation of SSA authority to lower echelon commands proves successful, a more formalized source selection process along the lines of the Air Force Systems Command (AFSC) might be considered for Navywide application. In the meantime, the researcher recommends that ASN (S&L) explore possible requiring activity candidates for a pilot program of formal source selections for ESS acquisitions of \$20 million and up.

6. Navy procurement administrative lead time (PALT) has continued to lengthen due to the growing number of regulations and the increasing complexity of the competitive procurement process.

The Navy procurement process for ESS buys is far too long and cumbersome compared to other Federal agencies, contractors argue. Poor planning and execution is revealed in too many cases of multiple amendments to RFPs leading to multiple best and final offer (BAFO) requests, they contend. From the development of an acquisition plan to time of award often takes more than two years in Navy ESS buys, whereas the Army, Air Force, NASA, and other Federal agencies are able to accomplish these tasks in 12 to 18 months.

In interviews with Army, Air Force, and NASA personnel, interviewees related many of the same obstacles to reduced PALT that Navy personnel encountered. PALT is defined as the period of time between the release of an RFP and the announcement of a contract award. The question posed

to non-Navy personnel by the researcher was, "How are your activities able to keep PALT between six and 12 months?"

Air Force interviewees related the following comments:

We try to make it four months from the time an RFP is on the street to the award time. Evaluation teams will be sequestered in one location for three to four weeks. A recorder will take messages and post them prior to breaks so that the teams will not be disturbed. By the third week, SSA briefing charts for the competitive range determination will be completed.

From the time of procurement request to the time of the contract award takes six to nine months normally. It is always less than 12 months though. We are able to meet or beat our milestones nearly always.

An Army interviewee related the following comments:

I can't say that the Army is more efficient at acquisition planning. We can usually get an AP written and approved, and an RFP on the street in six months. To receive offers, evaluate them, and make an award normally takes six months. For major source selections, it will take longer than six months. The total time from the start of an AP to an award should be one year. Difficulties include cases of Congressional or DOD involvement and politically sensitive programs. If headquarters approves business clearances or requires more briefings, PALT may take nine to twelve months or longer. We will try to hand carry the AP up to headquarters and brief it in person. If we send the AP by mail, we will get comments back in piecemeal fashion, with some comments contradicting each other or not understanding or grasping the issues. If decisions are not made on the spot at our headquarters briefings, problems get staffed and take a long time to get reconciled. For high priority programs, an Army Material Command (AMC) representative will come to our site to sit in on a prebusiness clearance and OK it in writing with our commanding general. We have found various ways of reducing processing time. However, if we follow the letter of headquarters regulations, we are no better off than the Navy. Hand carrying of paperwork and doing things in person are essential in reducing PALT.

One Navy contractor recommended that pre-business and post-business clearances be approved by ASN (S & L) shortly after firms in the competitive range have been identified so that PALT can be reduced. Currently, greater use of in-person briefings and conference phone calls, where approvals and other decisions are made on the spot, will still maintain the integrity of business clearance yet reduce PALT. For PALT of six to 12 months to be achieved within the Navy ESS arena, ambitious, streamlined contracting milestones must be promulgated and met. Techniques mentioned by Air Force and Army interviewees to eliminate distractions, cut "red tape", and accentuate timely decision-making and milestone attainment need to be incorporated into Navy ESS acquisition planning and source evaluation and selection. ASN (S&L) should look into ways of bringing Navy PALT performance into line with the six to 12 months PALT performance realized by most Federal agencies.

7. The Navy has not captured past performance history in situations requiring specialized and high-level professional talent.

DOD studies such as the Packard Commission Report and former Secretary of Defense Carlucci's "32 Issues" to improve the acquisition process have stressed the need for past contractor performance to be used as a significant source selection evaluation factor. The Packard Commission Report made the following comments:

Federal law and DOD regulations should provide for substantially increased use of commercial-style competition, emphasizing quality and established performance as well as price, particularly for research and development and for professional services. [Ref. 14: p. 15]

The Carlucci recommendations included the following:

Improve the Source Selection Process. Improve the source selection process to place added emphasis on past performance, schedule realism, facilitation plans and cost credibility. De-emphasize the importance of lowest proposed cost. Devote more attention to evaluating contractors' performance during and at the time of contract completion. Provide award fee contract structure to encourage good performance. This both provides an incentive for good performance, and a measure of contractor performance to be used in future source evaluations. Establish quality ratings where possible and ensure these past performance ratings are available for use by source selection personnel. [Ref. 15:p. 7, 27]

The Air Force has taken steps to use past performance as a significant evaluation factor in ESS buys. On the other hand, the Navy is just starting to automate and make available past performance history to contracting officers that would prove useful on current source selection decisions. For example, ASN (S & L) is currently sponsoring a program known as Red-Yellow-Green which prescribes a methodology for evaluating and categorizing contractor quality performance data by Federal Supply Code (FSC) and using these data to assist in the source selection process during the award determination. A "Red" classification indicates high risk, "Yellow" for moderate risk and "Green" for low risk. In determining contractor responsibility, these color classifications are to serve as only useful

guides in making an informed business judgment. The premise behind the Red-Yellow-Green program is to avoid awarding contracts for services and supplies to unsatisfactory performers. By adding a monetary assessment to submitted bid prices, activities can factor in the extra cost to the Government for effecting satisfactory quality performance. Ranking of bidders is then on "best price" after the monetary assessment has been factored into the bid price. To capture past performance data, a centralized Navy Contractor Evaluation System (CES) shares quality performance data obtained from field input with source selection officials. A one year test of the Red-Yellow-Green contractor evaluation system was begun at five activities on April 19, 1989 under the auspices of the Naval Supply Systems Command (NAVSUP) for a limited number of FSCs.

The Air Force is currently attempting to integrate its data collection system, the Contractor Performance Assessment Report (CPAR), into a data base system. This "report card" on contractor performance has thus far generated more than 300 CPAR reports on 85 contractors. Contractors are given 30 days to contest any CPAR remarks. A Government reviewing official can then make a final decision on the performance marks given. The source selection sensitive CPAR reports are then filed and safeguarded for use in future source selections. To ensure a "level playing

field" in source evaluations and selections, the CPAR information will only be in instances where all offerors have a past performance history onhand.

One Air Force interviewee said the CPAR system "works like an award fee without paying dollars. Contractors know that future business is at stake." Both industry and Navy personnel interviewed unanimously felt past performance data was needed as a major source selection factor. One contractor interviewed stated:

The Navy shows no corporate memory in cases where a contractor screws up. A contractor may be late, incur overruns, or act unresponsively to a requiring activity. Three or four months later, the Navy awards them new business, showing no corporate memory.

One Navy interviewee assigned to a requiring activity stated:

There is over emphasis on competition and cost in award criteria coupled with reduced consideration given to adverse impact on quality and performance over contract life. Contractor quality and productivity history should be but are rarely considered in award. Cost realism becomes a major factor after award instead of preaward. Past performance and cost realism must become major factors in award considerations.

The Navy should embark on methods to make a fair, impartial contractor performance "report card" system a data source for awarding ESS contracts. The use of such a system incentivizes a contractor to control costs, make timely deliveries, and provide quality work in accordance with Government feedback. The Navy should embark on a manual form of the CPAR system with the goal of developing a data base

allowing past performance history to be shared among Navy activities. While the Red-Yellow-Green and CPAR programs are based on quality, cost, and schedule performance of deliverable hardware and software, services are inherently difficult to quantify, particularly in instances of bad past performance. Appendix D shows an example of a report card format used by Contracting Officers' Technical Representatives (COTRs) at Naval Ship Weapons Systems Engineering Station, Port Hueneme, Ca. to assess contractor performance. While numerical scores are assigned by the evaluator, narrative comments can amplify specific strengths and weaknesses of the contractor's performance, thus assisting the contracting officer/SSA in making better sense of what the contractor's true performance was.

8. Should Total Quality Management (TQM) principles be incorporated in evaluation criteria for ESS contracts?

Both industry and Government personnel interviewed noted that it is hard to get agreement on what TQM is. The TQM philosophy, championed by W. Edwards Deming and adopted by a number of Japanese companies, focuses on improving the work process "constantly and forever". [Ref. 16:p. 132] Just like past performance, applying a TQM philosophy to production lines is different than a services environment, where quality is much more difficult to define and document. Army and Air Force efforts to put TQM requirements in RFPs

resulted in contractor plans for "statistical process control", "total quality programs", and "continuous process improvement" to be delineated in their technical proposals.

Several ESS contractors have embarked on training their work forces in the TQM philosophy. Applications in the ESS arena include flowcharting of tasks and avoidance of duplication of effort in drafting work, for instance. One technique to incentivize contractors in producing quality work the Navy wants is the use of Cost Plus Award Fee (CPAF) contracts, where award fee determinations are based on a contractor's ability to meet certain parameters of quality performance. CPAF contracts incentivize contractors to try to capture as much of the award fee pool as possible. This seems to be effective and greater use of CPAF contracts in ESS contracts should be attempted to improve contractor performance. The researcher, therefore, feels that TQM principles are too vague and abstract for incorporation as an evaluation factor for ESS contract awards.

9. Should the contracting function be centralized or decentralized for the acquisition of mission-specific equipment and services, including research and development (R&D)?

This issue was brought to the attention of the researcher by a number of Government personnel. Some interviewees wanted contracting officers to be located at or near their site full-time rather than being headquartered in Centers of Excellence several hours or miles away. The chief

complaint from requiring activities is that their technical needs are not being met by contracting officers who do not work at or near the program office site, and therefore cannot appreciate their frustrations in getting important work accomplished quickly. Some also argue that field activities' contracting authority should flow from the systems command they work for, such as NAVAIR or NAVSEA, rather than the Navy Supply Systems Command (NAVSUP), which oversees Navy Field Contracting System activities.

In recent years, several Navy requiring activities have been granted their own on-site contracting authority. Among these activities are Naval Weapons Center, China Lake, Ca., Naval Underwater Systems Center, Newport, R.I., and Naval Weapons Support Center, Crane, In. Navy personnel at those activities generally agreed that the decentralization served their needs better in obtaining timely delivery of mission-specific equipment and professional services by contracting personnel. The researcher recommends that requiring activities desiring local procurement authority or a restructuring of the flow of contracting authority submit requests for such changes through their chain of command to ASN (S&L), along with narrative comments from commanders of program offices citing the relative merits of these changes.

10. The Government should open a better dialogue with prospective bidders through greater use of prebidders conferences and draft RFPs requesting industry input to solicitations.

Industry interviewees strongly believe these two tools are superb techniques in fostering better communication between the Government and offerors prior to the release of an RFP. One industry interviewee termed draft RFPs "good insurance policies." By obtaining industry comment on the wording of SOWs, clarification of sample work directives, and other contract provisions, the Government and industry generally see a better RFP that result in better contractor proposals. Although prebidders conferences are disdained by some Government personnel who feel "the RFP will be shot full of holes and tough questions will be asked", others felt they were a useful tool if strict ground rules on the agenda and answering of questions were employed.

Although many Navy activities presently use draft RFPs, the recommendation from industry is to use them most of the time unless there is a good reason not to. This is especially true for ESS procurement, where specific contract requirements are difficult to define in a SOW. Some contracting activities, such as the Air Force Space Systems Division, always use draft RFPs for ESS buys because of the benefits obtained from industry input on highly technical procurements. An added benefit from frequent use of draft RFPs is the reduced likelihood of RFP modifications that in turn result in multiple rounds of BAFO submissions and add to

procurement action lead time (PALT) and contractor bid and proposal costs.

The researcher recommends that Navy activities maximize their use of draft RFPs and consider greater use of prebidders conferences to foster better dialogue with contractors.

11. The Navy needs to improve its debriefing conference for losing offerors.

Navy contracting activities generally received unfavorable remarks from industry for the manner in which debriefing conferences for those who were not awarded the contract were conducted. The chief complaint is the lack of feedback on where proposals were strong or weak. One industry interviewee stated:

We see the whole gamut in debriefing conferences. Some have a guy reading from a piece of paper while others provide packages or handouts comparing our proposals with the RFPs.

A secondary complaint is the unwillingness of some debriefers to answer any questions either at the debriefing or in writing at a later time. Compared to their Army and Air Force contracting contemporaries, industry felt Navy debriefers showed less confidence and knowledge in their answers to questions posed by losing offerors.

The researcher posed the question to Army and Air Force interviewees, "How do you conduct your debriefs for

those who were not awarded the contract?" One Army interviewee responded:

We call the contractors in and give them a handout or a package. We tie the debrief to Section M (Evaluation Factors For Award) of the RFP, stressing the strengths and deficiencies of each proposal and also how proposals were evaluated. In one instance where we handed out thick packages, we received much better responses to our needs on the next RFP. We want the contractor to go out with a warm, fuzzy feeling on how to rectify problems in the future.

An Air Force interviewee stated, "In our debriefs we give contractors scripts and charts detailing the strengths and weaknesses of their proposals."

Navy activities should try to provide written feedback to losing offerors as a matter of practice in their debriefs. Although offerors may give the appearance of expressing "sour grapes" in their manner of questioning debriefers, Navy contracting activities should try to use such a forum as a means of enhancing feedback to industry with the goal that subsequent RFPs will result in better proposals submitted by offerors.

12. The current FAR should be amended to provide adequate recognition of the technical and services industry and guidance of these services.

The general feeling from industry is that service contracts do not receive the high level of visibility inherent in production contracts despite the fact that the \$200 billion a year services industry continues to grab a larger part of the DOD pie. The need for hardware support,

integrated logistics support, and program management support continues to grow at a rapid pace despite shrinking budgets.

The FAR gives little mention of professional and technical services in part 37 (Service Contracting). No mention is made of the role of contracting officers' technical representatives (COTRs), for instance. In the absence of any explicit regulations, periodic policy declarations by the Navy and other Federal agencies have become commonplace. Various proposals offering changes to the FAR have been submitted by the Professional Services Council (PSC) to DOD. Further liaison between PSC and DOD, coupled with input from Government field activities, is needed to establish baseline regulations for contracting of engineering and technical support services. Improved FAR coverage of service contracting will lead to fewer policy declarations on issues such as source selection and cost realism, which intended or not, appear conflicting.

C. SUMMARY

The researcher's data analysis and findings were outlined in this chapter. Twelve pertinent issues in the ESS arena that impact on the source selection process were analyzed. The final chapter of this thesis will address the researcher's conclusions and recommendations concerning source selection procedures, answer the research questions, and suggest topics for further research.

V. CONCLUSIONS AND RECOMMENDATIONS

A. INTRODUCTION

Data presented in this thesis were derived from an examination of source selection procedures for engineering support services (ESS) contracts within the Navy. This final chapter will state the researcher's conclusions as derived from analysis of these data. This chapter will also include recommendations for improving the ESS process, answer the research questions, and list possible future research on this topic.

B. CONCLUSIONS

1. Standard work weeks of 45 hours or more for professional employees are generally undesirable.

Although Government and industry have not resolved the matter of whether uncompensated overtime (UOT) bidding practices should be banned or regulated, both parties generally feel that when standard work weeks exceed 44 hours, the benefits of the "free" overtime hours the Government receives are offset by the difficulty to quantify costs of Defense Contract Audit Agency (DCAA) oversight of UOT, declining employee morale, reduced surge capability, and increased potential for sloppiness or errors in work performance.

2. Navy contracting activities often reveal less information about ESS source selection evaluation subfactors than Army, Air Force, and National Aeronautics and Space Administration (NASA) contracting activities.

In examining Section M (Evaluation Factors For Award) of ten Requests For Proposals (RFPs) issued by Navy, Air Force, Army, and NASA contracting activities, the researcher found that Navy RFPs contained little discussion of evaluation subfactors compared to those of other Federal agencies. While many Air Force, Army, and NASA RFPs go into great detail about the rationale behind the subfactors and the mechanics used in evaluating offers, Navy RFPs are often terse about such matters.

3. Most Navy contracting activities perform cost realism analyses differently in ESS procurements.

While Air Force, Army and NASA contracting activities often receive explicit headquarters guidance on procedures for evaluating the reasonableness, realism, and completeness of cost proposals, Navy contracting activities take a less uniform approach. While Navy activities perform an independent Government cost estimate (IGCE) as standard practice, some activities perform a Most Probable Cost (MPC) analysis for each cost proposal while others do not. Thus the detail and richness of cost realism analyses varies from one activity to another.

4. Gaming techniques are largely used by contractors to offer very optimistic cost bids in a highly competitive environment.

When cost is weighted at 40 percent or higher in best value procurements or when the evaluation method is low cost, technically acceptable, contractors believe the low cost offeror invariably will win over contractors submitting higher quality technical proposals having commensurate cost estimates for the increased level of quality. While some Navy contracting activities are adept at detecting, questioning, and penalizing flagrant gaming practices, such as "throwaway" labor categories, the researcher viewed a contract awarded to a offeror bidding clerical labor at a fully burdened \$4.05 hourly rate for a time and materials contract while inflating the hourly costs of senior professional employees.

5. Air Force, Army, and NASA contracting agencies often use the formal source selection process in ESS procurements whereas the Navy almost exclusively uses contracting officers to make award decisions.

Product division commanders in the Air Force and Army actively serve as source selection authorities (SSAs) and redelegate some of this authority to subordinate commands. The formal source selection process is perceived by industry as fairer and more objective in high dollar value ESS procurements.

6. Procurement ~~action~~ lead time (PALT) is normally lengthier in Navy ESS procurements than in Army, Air Force, and NASA procurements.

Most non-Navy contracting activities award ESS contracts within six to 12 months after issuance of an RFP.

Interviewees generally relate that techniques such as hand carrying of paperwork and "doing things in person" are essential in reducing PALT. Conference phone calls and in-person briefings, where approvals and other decisions are made on the spot, also accentuate timely decision-making and milestone attainment in Army, Air Force, and NASA procurements.

7. The Navy has not yet employed past performance history to any significant degree in ESS procurements.

Department of Defense (DOD) studies such as the Packard Commission Report and former Secretary of Defense Carlucci's "32 Issues" have stressed the need for past contractor performance to be used as a significant source selection factor. The Navy's Red-Yellow-Green program and the Air Force's Contractor Performance Assessment Report (CPAR) program have been implemented in procurements of hardware and supplies. However, little headway has been made in automating past performance data arising from procurements. The Air Force's CPAR program for ESS procurements is working on a manual basis while automation efforts continue. In the meantime, the Naval Air Systems Command (NAVAIR) is working on developing a data base to capture past performance history for ESS procurements.

8. The use of draft RFPs, prebidders conferences, and well-structured debriefing conferences enhances Government-industry communication.

These communication tools were noted by interviewees for providing excellent dialogue and feedback that accentuates the ESS procurement process. Contractors believe more knowledgeable offers are submitted when these mechanisms are effectively used.

C. RECOMMENDATIONS

1. Navy activities should regulate uncompensated overtime bidding practices by stating in the RFP that all offers will be evaluated based on a standard work week.

NASA contracting activities often make it a point to set a "level playing field" while allowing offerors to submit an additional, alternate approach if considered more beneficial to the Government. While industry desires a 40 hour standard work week, Navy requiring activities should not be constrained in specifying a longer work week. However, standard work weeks of 45 hours or more should be analyzed in cost benefit terms as to the potential adverse impact of reduced employee morale, reduced surge capability, and sloppiness and errors in work performance. The researcher concludes that a standard work week set by the Government is the best solution to the Government-industry impasse on whether uncompensated overtime bidding practices should be banned or regulated.

2. The Navy should strive to reveal more information about the rationale behind the source selection factors, subfactors, and their relative importance.

Interviewees generally relate that techniques such as hand carrying of paperwork and "doing things in person" are essential in reducing PALT. Conference phone calls and in-person briefings, where approvals and other decisions are made on the spot, also accentuate timely decision-making and milestone attainment in Army, Air Force, and NASA procurements.

7. The Navy has not yet employed past performance history to any significant degree in ESS procurements.

Department of Defense (DOD) studies such as the Packard Commission Report and former Secretary of Defense Carlucci's "32 Issues" have stressed the need for past contractor performance to be used as a significant source selection factor. The Navy's Red-Yellow-Green program and the Air Force's Contractor Performance Assessment Report (CPAR) program have been implemented in procurements of hardware and supplies. However, little headway has been made in automating past performance data arising from procurements. The Air Force's CPAR program for ESS procurements is working on a manual basis while automation efforts continue. In the meantime, the Naval Air Systems Command (NAVAIR) is working on developing a data base to capture past performance history for ESS procurements.

8. The use of draft RFPs, prebidders conferences, and well-structured debriefing conferences enhances Government-industry communication.

Each Navy contracting activity should tailor the wording of Section M (Evaluation Factors For Award) of RFPs to each procurement, avoiding overreliance on a "boilerplate" Section M taken from a generic source selection plan. In addition, thorough discussion of the relative weights of factors, subfactor elements and their weights, and details of evaluation methodology should be employed to enhance Government industry communication.

3. The Navy should streamline its guidance on cost realism analyses in ESS procurements.

The Office of the Assistant Secretary of the Navy (Shipbuilding and Logistics) ((ASN (S & L))) can provide guidelines to Navy contracting activities as to the elements and purpose of a cost realism analysis. By evaluating the reasonableness, realism, and completeness of each contractor's proposal and developing an independent Government cost estimate, Most Probable Cost for each cost proposal, and a technical uncertainty impact statement on cost, Navy cost realism analyses can be conducted in a more uniform manner while tailoring each analysis to the services being acquired. ASN (S & L) should also explore the possibility of obtaining Department of Labor (DOL) market indices and related ESS data for use by source selection teams at Navy systems commands and field contracting activities. Lastly, the progress of NAVAIR's efforts to incorporate ESS contractor performance data into a data base

should be assessed to determine whether data base information management is an efficient and effective tool that can be applied elsewhere at Navy contracting activities.

4. To discourage gaming of technical and cost proposals, the Navy should adopt a trial program of replacing the current 60/40 technical/cost mix in best value procurements with an award basis being "an integrated assessment of technical and price/cost."

The Air Force, Army, and NASA do not score cost or price. A narrative, fully justified assessment of each cost proposal lends itself to better analysis of cost realism. In addition, gaming of technical and cost proposals can be penalized through reduced technical scores and narrative analysis of unrealistic costs addressing deficiencies. The 60/40 technical/cost mix can serve as a useful guideline for relative factor weights, but the contracting officer/SSA should be given the authority to override these percentages in making an award decision based on an integrated assessment of technical and price/cost factors.

5. The Navy should initiate a pilot program within a contracting region to weigh the costs and benefits of formalizing source selections for awards that are currently decided by a contracting officer.

ASN (S & L) should explore possible requiring activity candidates for a pilot program of formal source selections for ESS acquisitions of \$20 million and up. The Air Force, Army, and NASA believe that a formal source selection process for higher dollar ESS procurements results in a fairer, more objective award decision by a highly

informed SSA. Navy requiring activities such as Pacific Missile Test Center, Point Mugu, Ca. and Navy Ship Weapon Systems Engineering Station, Port Hueneme, Ca., which both come under the contracting cognizance of Navy Regional Contracting Center, San Diego Detachment, Long Beach, Ca., deal with highly technical ESS requirements that lend themselves to more formal source selections for large dollar procurements. If the delegation of SSA authority to lower echelon commands proves successful, a more formalized source selection process along the lines of the Air Force Systems Command (AFSC) might be considered for Navywide application.

6. The Navy should adopt a number of the techniques used by the Army and Air Force to reduce PALT in ESS procurements.

The "lessons learned" related by Army and Air Force interviewees in reducing PALT and streamlining the acquisition process focused on timely decision-making and the use of in-person briefings and conference phone calls. For PALT of six to 12 months to be achieved within the Navy ESS arena, ambitious, streamlined contracting milestones must be promulgated and met. ASN (S & L) should encourage such expedited briefings of prebusiness and postbusiness clearances as an initial step to reduce PALT while looking into ways of bringing Navy PALT performance into line with the six to 12 months PALT performance realized by most Federal agencies.

7. The Navy should embark on a manual form of the CPAR system with the goal of developing a data base allowing past performance history to be shared among Navy activities.

The CPAR format allows the use of a "report card" format in which a contractor can contest the performance scores assigned but a reviewing official makes a final determination. By capturing past performance history and making it a source selection factor, the Navy can make better awards up front to contractors that have shown superior demonstrated productivity and quality in work performed.

8. Navy contracting activities should use draft RFPs as standard practice unless there is a good reason not to.

The benefits of using draft RFPs in ESS procurements are widespread. Both Government and industry interviewees believed the dialogue on RFP wording resulted in a better RFP and higher quality proposals. The Air Force Space Systems Division, Los Angeles, Ca., is such a believer in draft RFPs for highly technical ESS procurements that it employs them as standard practice.

9. Navy contracting activities should provide written feedback to losing offerors as a matter of practice in debriefing conferences.

The strengths and weaknesses of contractor proposals should be provided to each offeror, tying in Section M (Evaluation Factors For Award) of the RFP. Although offerors may give the appearance of expressing "sour grapes" in their manner of questioning debriefers, Navy contracting activities

should try to use such a forum as a means of enhancing feedback to industry with the goal that subsequent RFPs will result in better proposals submitted by offerors.

D. ANSWERS TO RESEARCH QUESTIONS

1. **Primary Research Question: What are the key problems in engineering support services contracts and how might these problems be avoided in order to improve the contracting process?**

As discussed in Chapter 1, acquisition of engineering and technical services involves the buying of a level of effort from a contractor rather than procuring hardware or supplies. With these services, the Government is buying time, knowledge, and expertise. This expertise and knowledge are very difficult to quantify in a Statement of Work (SOW) and can only be qualified through personnel educational and work background requirements written into the solicitation. Key problems in ESS procurements include uncompensated overtime bidding practices, "gaming" of technical and cost proposals, cost realism analysis methodology, disclosure of source selection factors and subfactors, and the use of past performance data as a source selection factor. These problems might be avoided by comparing Navy procurement of ESS with Air Force, Army, and NASA procurements of similar services and gleaning "lessons learned" from cognizant Government personnel. Industry input on how the ESS

procurement process might be improved was also solicited in interviews with cognizant industry personnel.

2. Subsidiary Question 1: What are engineering support services and when are they used?

As previously mentioned, the procurement of engineering support services (ESS) involves the buying of time, knowledge, and expertise from a firm in the professional and technical services industry. A requirement for ESS is originated when a program office or other Navy activity defines a requirement for engineering or technical capabilities not available in-house or at another Navy or DOD activity. ESS contracts may be used in those cases where the task to be performed involves the application of skills not available in-house or such skills would not be economical or feasible to develop. Unlike most procurements of hardware and services, requirements originators will often take an active role in ESS contract administration. The procuring contracting officer, in tandem with the contracting officer's technical representative (COTR) assigned in the contract, will oversee postaward contract performance.

3. Subsidiary Question 2: What problems are encountered in source competition and selection for engineering support services contracts?

As discussed in Chapter III, contracting activities have to discriminate between the relative merits of highly competitive technical proposals. With tight budgets placing more emphasis on low cost, "gaming" of cost proposals and

bidding of uncompensated overtime have become commonplace in an effort to win Government business. The Government has to make an informed business decision about which offeror will prospectively provide the best performance given such a competitive bidding environment.

4. **Subsidiary Question 3: What issues arise when developing evaluation criteria?**

First, the services to be procured must be awarded on either a best value basis or a low cost, technically acceptable basis. If the engineering support services to be procured require a significant degree of engineering knowledge and expertise, these services should be procured on a best value basis.

Second, the source selection evaluation team must decide the scoring schemes (adjectival, color codes, numbers) it will use to grade offerors' technical and cost proposals. Furthermore, they must make sense of the tallied scores so that the contracting officer/SSA can be fully informed of the relative strengths and weaknesses of the proposals prior to making the award decision.

Lastly, the contracting activity must decide how to articulate the source selection factors, subfactors, and scoring methodology to offerors in Section M (Evaluation Factors For Award) in the RFP. Contractors want to know more details about the Navy's rationale for choosing evaluation

factors and subfactors and assigning relative weights to them.

5. Subsidiary Question 4: What are appropriate evaluation factors (Section M of RFP) for engineering support services contracts?

As noted in Appendix C, areas of Technical/Mission Suitability, Cost Factors, Experience and Past Performance Factors, and Other Factors are appropriate factors for ESS procurements. Delineation of subfactors and their relative importance are often provided by Air Force, Army, and NASA contracting activities, whereas the Navy rarely provides that level of detail in Section M of RFPs. Past performance is one evaluation factor that all Federal agencies have had difficulty incorporating into ESS procurements as an evaluation factor.

E. RECOMMENDATIONS FOR FURTHER RESEARCH

1. Examine the training of COTRs and the problems encountered with assigning responsibility for each ESS contract to one COTR.

2. Examine problems encountered in ESS contract administration.

APPENDIX A

MEMORANDUM FOR COMMANDERS OF SYSTEMS COMMANDS
DEPUTY CHIEF OF STAFF FOR INSTALLATIONS AND
LOGISTICS, HEADQUARTERS, U.S. MARINE CORPS
COMMANDING GENERAL, MARINE CORPS RESEARCH,
DEVELOPMENT AND ACQUISITION COMMAND
DIRECTOR, STRATEGIC SYSTEMS PROGRAMS
COMMANDER, MILITARY SEALIFT COMMAND
CHIEF OF NAVAL RESEARCH
COMMANDING OFFICER, AUTOMATIC DATA PROCESSING
SELECTION OFFICE
COMMANDER, NAVAL TELECOMMUNICATIONS COMMAND

Subj: USE OF NUMERICAL SCORING WHEN EVALUATING PROPOSALS IN
COMPETITIVE NEGOTIATED PROCUREMENTS

In best-value competitive negotiated procurements, the objective of the source selection process is to determine the substantive technical differences between the offerors, then balance those differences with cost to determine the best-value to the Navy. A variety of scoring methods are used to evaluate proposals, including adjectives, colors, and numerical scoring. The evaluation scores are a useful tool to assist in the source selection decision. However, experience has shown that problems can occur when numeric scoring procedures are used. Under this method, cost and technical evaluation factors receive numeric scores which are added to determine a total point score. Total point scores are not necessary in making the source selection decision, and can contribute to selecting an offer which is not the best value to the Navy.

Therefore as a general policy, I am prohibiting the assignment of a numeric score to the proposed cost or price in best-value source selection. This change will focus the source selection decision on the substantive technical differences between the offerors and the relative costs, rather than on total point scores. It will also place emphasis on strong narrative descriptions and will reinforce the need for a thorough written discussion of the Navy's source selection decision. Contracting officers may continue to use numeric scoring in evaluating the technical portion of an offeror's proposal.

The change does not diminish the importance of cost in the decision process. While specific percentage weighting on cost is no longer applicable, cost remains a very important factor in source selections.

This policy is effective for all source selection plans approved after the date of this memorandum. The Chief of the Contracting Office may waive this policy in writing, when full numeric scoring is justified for a particular procurement.

APPENDIX B

CALCULATION OF HOURLY RATES FOR PROFESSIONAL EMPLOYEES

Calculation of Hourly Rates

Standard Method

Annual salary ÷ 2,080 hours = Hourly rate

\$41,600 ÷ 2,080 hours = \$20.00/hour

Overhead, G&A, etc. (@ 100%) 20.00

Profit (@ 10%) 4.00

Fully burdened hourly rate \$44.00/hour

Billable amount for a person-year = 1,856 hours × \$44/hour = \$81,664

Uncompensated Overtime Method

(Assuming an average 48-hour work week)

Annual salary ÷ Actual hours to be
worked plus vaca-
tion/holiday/sick
time, etc. = Hourly rate

\$41,600 ÷ 2,496 hours = \$16.67/hour

Overhead, G&A, etc. (@ 100%) 16.67

Profit (@ 10%) 3.33

Fully burdened hourly rate \$36.67/hour

Billable amount for a person year = 2,227 hours × \$36.67/hour = \$81,664

Notes

(1) 1,856 hours is based on 2,080 hours minus 224 hours (5.6 weeks) for vacation/holiday/sick

(2) 2,496 hours is based on 52 weeks times 48 hours per week

(3) 2,227 hours is based on 2,496 hours minus 269 hours for vacation/holiday/sick

Source: Bauder, Robert E., "Uncompensated Overtime: Is It In The Government's Best Interest?," Contract Management, Issue 7, Vol. 29, July 1989.

APPENDIX C

RECOMMENDED EVALUATION FACTORS FOR AWARD IN ENGINEERING SUPPORT SERVICES PROCUREMENTS

Area 1: Technical/Mission Suitability

Element 1, Key Personnel (Factor)

This factor will be used to evaluate the individuals proposed by the offeror to fill the key positions, and their ability to perform the functions of the Statement of Work. Consideration will be given to the resume, reference checks, and an interview with the person whom the offeror proposes as Project Manager. Other Key Personnel, whom the offeror considers to be most important to the success in satisfying the requirements of this procurement, will also be evaluated.

Element 2, Understanding The Requirement (Factor)

Technical Understanding (Criterion)

The evaluation of this criterion will be based on the offeror's overall understanding of the requirements of the various types of projects, their similarities and differences, the different engineering disciplines involved, and the interrelationship of these disciplines required for completion of the work. The offeror's philosophy and approach to project planning and control to meet the requirements of the SOW and to ensure completion of a project on schedule and within cost will also be evaluated. This criterion will also be used to evaluate any exceptions taken to the SOW, and supporting rationale for proposed solutions.

Total Compensation Plan (Professional Employees) (Criterion)

This criterion will be used to evaluate the offeror's plan to fairly compensate the professional staff. In establishing compensation levels for professional employees, the total compensation (both salaries and fringe benefits) proposed, shall reflect a clear understanding of the requirements of the work to be accomplished and the suitability of the proposed structure to obtain and retain qualified personnel to meet mission objectives. The salary rates and ranges must recognize the distinct differences in professional skills and the complexity of various disciplines as well as job difficulty. Proposals offering total compensation levels less than currently being paid by the predecessor for the same work will be evaluated, in addition

to the above, on the basis of maintaining program continuity, uninterrupted work of quality, and availability of required competent professional employees. Offerors are cautioned that instances of lowered compensation for essentially the same professional work may be considered a lack of sound management judgment in addition to indicating a lack of understanding of the requirements. The term "professional employee" means any person employed in a bona fide professional capacity as the term is defined in Part 541 of Title 19, Code of Federal Regulation.

Element 3, Management Plan (Factor)

Management Approach (Criterion)

This criterion will be used to evaluate the offeror's proposed technical management procedures for directing, controlling, and reporting the work functions. Consideration will be given to the offeror's proposed procedure for internal estimation and the level of signature authority given to the on-site manager. Evaluation will include the offeror's approach for management of all work performed by the offeror and by proposed approach to maintain and improve the quality of services to be provided.

Organizational Structure (Criterion)

The offeror's planned organizational structure for accomplishing the requirements of the SOW will be evaluated. Considerations will include supervisory responsibility, lines of authority, relationship within the corporate structure and to proposed/potential subcontractors, and the proposed interface between the offeror's technical contract manager and the Navy Contracting Officer's Technical Representative (COTR). This criterion will be used to examine the autonomy, authority, and responsibility vested in the local manager, including such responsibilities as the hiring and firing of personnel, and approval of salary offers for prospective new employees. Consideration will also include the local manager's access to company resources. This criterion will also be used to examine the authority and responsibility vested in individual task managers.

Staffing Plan (Criterion)

This criterion will be used to evaluate the offeror's understanding of the skill mix, expertise, and qualifications of personnel other than key, and the availability, distribution, and efficient use of the work force necessary to support this requirement as demonstrated by the proposed

staffing plan. The staffing plan will be evaluated to assess the realism of proposed salaries and wages for non-professional employees. The total compensation proposed (salaries, wages, and fringe benefits) must reflect a clear understanding of the work requirements and competitive hiring environment of the local job market. In addition, this criterion will be used to evaluate the offeror's hiring plan, recruiting methods, and the record of recruiting and retention success for similar requirements in order to ensure that the proposed staffing plan will be realized. Consideration will be given to the methods the offeror proposes to accomplish ongoing training of personnel. The phase-in/phase-out plan will also be evaluated in this criterion. This criterion will include an evaluation of the offeror's procedures and authority level for making exceptions to its own staffing policies.

Element 4, Company Resources

To assure scheduled performance for the work functions in the Statement of Work, it will be advantageous for the Navy requiring activity if an offeror has broader resources than those of the on-site staff. This factor will evaluate the offeror's approach for providing back-up for the Project Manager, key personnel, and personnel other than key personnel during absences due to vacation, illness, etc. Consideration will also be given to techniques used by the offeror to replace key personnel who leave the contractor's employment. While the SOW requires that the contractor have the in-house resources to perform essentially all of the work that will be required, it is recognized that in the interest of cost and schedule constraints, some subcontracting for specialized services may be appropriate. This criterion will consider such things as specific skills, skill levels, and disciplines for which the offeror would expect to subcontract. The corporate identity and geographic location of proposed subcontractors, where known, will also be considered.

Area 2: Cost Factors

Proposed costs are analyzed to determine the probable "cost of doing business" and to identify and weigh features that could cause a given proposal to cost more or less than others, and by what amount. Probable cost indicates what each offeror's proposal will probably cost the Government if he wins.

The following factors will be used to evaluate the proposed cost and to determine the probable cost to the Government of accepting each proposal. All proposed costs will be evaluated.

Element 1, Validity of Proposed Cost (Factor)

Proposals will be evaluated to determine their validity. Any misleading information which may compromise the validity of the proposed costs may be considered to be indicative of potential estimating/projection problems.

Element 2, Probable Cost (Factor)

The probable cost is defined as the expected cost to the Government that will result from accepting a particular proposal. The initial three (3) year period and two (2) year priced option period, including the option for Additional Level of Effort will be considered in the probable cost for the 2-year option period, and the additional level of effort, this does not imply an obligation on the part of the Government to ultimately exercise these options.

Element 3, Probable Cost Difference

Probable cost differences among offerors and their causes, including those due to differences in business methods and operating procedures, will be evaluated. Burdened labor rates will be used as part of the evaluation in order to identify the overall differences among offerors' cost per hour.

Element 4, Professional Compensation (Factor)

Proposals with unrealistically low direct labor rates and/or do not reflect a reasonable relationship of compensation to professional job categories and experience levels may be viewed as reflecting a failure to comprehend the complexity of the contract requirements. This is predicated on the fact that such compensation may be seen to impair the contractor's ability to recruit and retain competent professional employees. The Government is concerned with the quality and stability of the work force to be employed on this contract. The compensation data supplied will be used, in part, to evaluate the offeror's understanding of the contract requirements.

Area 3: Experience and Past Performance Factors

Consideration will be given to experience and past performance data related to relevant programs with both Government and Industry covering prime and subcontract performance within the past three (3) years. A proposer's past performance on relevant or comparable programs will be examined. Such examination will be to an extent sufficient to be considered indicative of performance to be expected on the work under this procurement. This portion of the evaluation pertains to overall corporate experience, not individual or key personnel experience. Criteria to be evaluated under this factor are:

a. The offeror's experience in doing work comparable to or related to the effort required under this procurement will be evaluated. The evaluation team will review projects performed by the offeror which include a comparable magnitude of effort including technical, cost, schedule or management elements or constraints similar to those expected in this requirement.

b. Past performance, or how well an offeror did on earlier work, is an indicator of how well he can be expected to perform on this procurement. The evaluation team will evaluate characteristics such as resiliency, resourcefulness, and management determination to see that an organization lives up to certain commitments or standards and skill in development and utilization of personnel. Our analysis will be particularly influenced by performance on contracts of similar cost and complexity pertinent to this contract.

Area 4: Other Factors

Other factors which will be considered in the evaluation of proposals include:

a. Financial conditions, accounting system capable of collecting or recording data for a cost reimbursement contract, business reputation and sufficiency of operating capital.

b. Stability of labor-management relations.

c. Extent of proposed small and disadvantaged business, and women-owned business participation in the subcontracting plan; and

d. Use of subcontracts with companies located in labor surplus areas:

e. Any information contained in Governmental records of Inspector General of Cognizant Administrative/Audit Agencies.

APPENDIX D

SAMPLE ASSESSMENT REPORT OF CONTRACTOR PERFORMANCE

**NAVAL SHIP WEAPON SYSTEMS
ENGINEERING STATION
CONTRACTORS PRODUCTIVITY
INDEX REPORT**

CONTRACT NO. _____

DELIVERY ORDER NO. _____

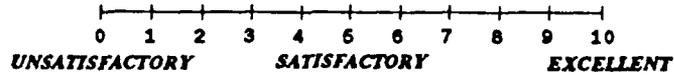
COTR SIGNATURE _____

DATE _____

REVIEWED BY _____

DATE _____

PRODUCTIVITY INDEX RATING



OUTSTANDING PERFORMERS (INDIVIDUAL OR GROUP):

Source: Navy Ship Weapon Systems Engineering
Station, Port Hueneme, California

APPENDIX D (Continued)

PRODUCTIVITY ELEMENT DEFINITIONS

1. QUALITY OF PRODUCT OR SERVICE

QUALITY OF PRODUCT OR SERVICE AS MEASURED ACCORDING TO THE REQUIREMENTS OF THE STATEMENT OF WORK.

2. TIMELINESS

ADHERENCE TO PLANNED TIME PERFORMANCE AND BENEFITS OF EARLY DELIVERY.

3. TOTAL OR UNIT COST REDUCTION

DOCUMENTED, VALIDATED SAVINGS REALIZED ON THIS CONTRACT PLUS CREDIT FOR FUTURE SAVINGS.

4. INNOVATIVE PERFORMANCE

GENERATES, IMPLEMENTS, AND DOCUMENTS IDEAS FOR IMPROVED METHODS WHICH MAKE WORK MORE PRODUCTIVE, OR OF A HIGHER QUALITY AT AN EQUAL OR LOWER COST. PERFORMANCE OF UNDEFINED ELEMENTS OF A TASK THAT CONTRIBUTE TO THE END RESULT.

5. ELECTIVE ELEMENT

AN ITEM OF CONCERN UNIQUE TO THE PERFORMANCE OF THE STATEMENT OF WORK NEGOTIATED BY THE COTR AND THE CONTRACTOR'S REPRESENTATIVE.

APPENDIX D (Continued)

PRODUCTIVITY ELEMENTS SEE DEFINITIONS ON BACK 1. QUALITY OF PRODUCT OR SERVICE		4. INNOVATIVE PERFORMANCE	
EXCELLENT 10 GOOD 8 SATISFACTORY 6 NEEDS IMPROVEMENT 2 UNSATISFACTORY 0	ELEMENT WEIGHT (ASSIGNED BY CO/FR) 0.____ (MAXIMUM OF 0.8)	EXCELLENT 10 GOOD 8 SATISFACTORY 6 NEEDS IMPROVEMENT 2 UNSATISFACTORY 0	ELEMENT WEIGHT (ASSIGNED BY CO/FR) 0.____ (MAXIMUM OF 0.8)
REMARKS: _____	REMARKS: _____	REMARKS: _____	REMARKS: _____
2. TIMELINESS		5. ELECTIVE ELEMENT:	
EXCELLENT 10 GOOD 8 SATISFACTORY 6 NEEDS IMPROVEMENT 2 UNSATISFACTORY 0	ELEMENT WEIGHT (ASSIGNED BY CO/FR) 0.____ (MINIMUM OF 0.1)	EXCELLENT 10 GOOD 8 SATISFACTORY 6 NEEDS IMPROVEMENT 2 UNSATISFACTORY 0	ELEMENT WEIGHT (ASSIGNED BY CO/FR) 0.____ (MAXIMUM OF 0.2)
REMARKS: _____	REMARKS: _____	REMARKS: _____	REMARKS: _____
3. COST REDUCTIONS		PRODUCTIVITY INDEX COMPUTATION WEIGHT X SCORE =	
EXCELLENT 10 GOOD 8 SATISFACTORY 6 NEEDS IMPROVEMENT 2 UNSATISFACTORY 0	ELEMENT WEIGHT (ASSIGNED BY CO/FR) 0.____ (MINIMUM OF 0.1)	ELEMENT #1 0.____ X ____ = ____ ELEMENT #2 0.____ X ____ = ____ ELEMENT #3 0.____ X ____ = ____ ELEMENT #4 0.____ X ____ = ____ ELEMENT #5 0.____ X ____ = ____ PRODUCTIVITY INDEX = ____ (SUM OF ABOVE)	ELEMENT #1 0.____ X ____ = ____ ELEMENT #2 0.____ X ____ = ____ ELEMENT #3 0.____ X ____ = ____ ELEMENT #4 0.____ X ____ = ____ ELEMENT #5 0.____ X ____ = ____
REMARKS: _____	REMARKS: _____	SUM OF WEIGHTS MUST EQUAL 1.0	

APPENDIX E
LIST OF INTERVIEWEES

The following is a list of people who were interviewed or directly provided information necessary for this research. Interviews consisted of both telephone conversations and personal visits.

Anderson, CDR, SC, USN, Military Sealift Command, Washington, D.C., September 7, 1989.

Ange, S., Acquisition Officer, Navy Ship Weapon Systems Engineering Station, Port Hueneme, Ca., July 17, 1989.

Bachman, M., Division Head, Navy Regional Contracting Center, San Diego, Ca., July 28, 1989.

Banks, A., Division Manager, Naval Weapons Center, Crane, In., August 8, 1989.

Boalick, R., Project Manager, ANADAC, Inc., Arlington, Va., various, July-September 1989.

Brooks, J., Program Analyst, Weapons Evaluation Directorate, Pacific Missile Test Center, Point Mugu, Ca., July 17, 1989.

Brostrom, K., Director, Corporate Development, Vitro Corp., Silver Spring, Md., various, July-September 1989.

Cheney, J., CAPT, SC, USN, Naval Supply Systems Command, Washington, D.C., June 14, 1989.

Conklin, B., Vice-President, Planning Research Corp., McLean, Va., various, August-September 1989.

Conote, P., Price Analyst, U.S. Air Force Space Systems Division, Los Angeles, Ca., October 5, 1989.

Covey, C., Acting Director of Cost, Pricing, and Finance, Office of the Secretary of Defense, Washington, D.C., August 28, 1989.

Dell, M., Procuring Contracting Officer, Navy Regional Contracting Center, San Diego, Ca., July 28, 1989.

Dillon, S., Branch Head, Naval Air Systems Command, Washington, D.C., various, August-September 1989.

Dowling, R., LCDR, SC, USN, Office of Assistant Secretary of the Navy (Shipbuilding and Logistics), Washington, D.C., various, April-August 1989.

Dutra, B., Procuring Contracting Officer, Naval Underwater Systems Center, Newport, R.I., August 8, 1989.

Dunaway, C., Consultant, United Information Services, Beltsville, Md., August 11, 1989.

Ervine, D., President, VSE Corp., Alexandria, Va., various, August September 1989.

Ford, F., Office of Assistant Secretary of the Navy (Shipbuilding and Logistics), Washington, D.C., May 19, 1989.

Foss, J., Acquisition Officer, Weapons Evaluation Directorate, Pacific Missile Test Center, Point Mugu, Ca., July 17, 1989.

Greathouse, M., Director of Corporate Communications, Vitro Corp., Silver Spring, Md., August 4, 1989.

Hanna, J., Director of Special Projects, Engineering Visions Corp., San Diego, Ca., September 26, 1989.

Hanson, C., Procurement Analyst, Naval Underwater Systems Center, Newport, R.I., August 8, 1989.

Hauenstein, W., RADM, SC, USN, Competition Advocate of the Navy, Office of Assistant Secretary of the Navy (Shipbuilding and Logistics), February 2, 1989.

Jarman, J., Vice-President, VSE Corp., Alexandria, Va., September 6, 1989.

LaFollette, C., Director of Contracts, National Aeronautics and Space Administration (NASA), Ames Research Center, Moffett Field, Ca., October 6, 1989.

Larsen, D., Legal Counsel, Navy Regional Contracting Center, San Diego Detachment, Long Beach, Ca., July 17, 1989.

Larson, M., Resident Supervisor, Defense Contract Audit Agency Headquarters, Alexandria, Va., August 10, 1989.

Lasswell, J., Manager of San Diego Operations, Systems Engineering Corp. (SEACOR), San Diego, Ca., September 26, 1989.

Losquadro, J., Vice-President, VSE Corp., Alexandria, Va., various. September-November 1989.

McDevitt, B., Director of Contracts, Navy Regional Contracting Center, Philadelphia, Pa., July 27, 1989.

McKamey, V., Source Selection Policy Staff, U.S. Army Material Command, Washington, D.C., September 13, 1989.

Meyer, T., Branch Chief, Research, Development, and Engineering Procurement Division, U.S. Army Tank-Automotive Command, Warren, Mi., various, October 1989.

Miller, R., Ordering Officer, Naval Weapons Center, China Lake, Ca., August 11, 1989.

Oeters, H., Supervisor Contract Negotiator, U.S. Air Force, Wright Patterson Air Force Base, Dayton, Oh., September 11, 1989.

Peckham, D., Head of Policy and Procedures, Naval Underwater Systems Center, Newport, R.I., August 8, 1989.

Pollen, E., Division Head, Navy Regional Contracting Center, San Diego Detachment, Long Beach, Ca., July 14, 1989.

Pollock, W., CAPT, SC, USN, Military Sealift Command, Washington, D.C., September 7, 1989.

Richter, R., Acquisition Officer, Navy Ship Weapon Systems Engineering Station, Port Hueneme, Ca., July 17, 1989.

Santos, T., Procuring Contracting Officer, Navy Regional Contracting Center, San Diego, Ca., July 28, 1989.

Scott, S., Division Head, Naval Weapons Center, China Lake, Ca., August 11, 1989.

Seger, B., Naval Ship Systems Engineering Station, Philadelphia, Pa., July 5, 1989.

Shultz, M., Executive Director, Professional Services Council, Washington, D.C., various, August 1989.

Sueur, R., CDR, SC, USN, Navy Regional Contracting Center, San Diego Detachment, Long Beach, Ca., July 14, 1989.

Tomlinson, D., CDR, SC, USN, Naval Supply Systems Command, Washington, D.C., September 8, 1989.

Vranicar, G., Contracts Supervisor, U.S. Air Force Space Systems Division, Los Angeles, Ca., various, October 1989.

Wasson, S., Procuring Contracting Officer, Navy Regional Contracting Center, San Diego, Ca., July 28, 1989.

Wend, D., Contracts Supervisor, U.S. Army Tank-Automotive Command, Warren, Mi., October 5, 1989.

Wight, T., LCDR, SC, USN, Military Sealift Command, Washington, D.C., September 7, 1989.

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