

<b>SOLICITATION, OFFER AND AWARD</b>		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)		RATING <b>DO-C9</b>	PAGE OF <b>1   28</b> PAGES
2. CONTRACT NO.	3. SOLICITATION NO. <b>N00173-03-R-SE04</b>	4. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)		5. DATE ISSUED <b>25 APR 2003</b>	6. REQUISITION/PURCHASE NO.
7. ISSUED BY Contracting Officer, Code <b>N68462</b> Naval Research Laboratory NRL-SSC Department of the Navy Stennis Space Center, MS 39529-5004		8. ADDRESS OFFER TO (If other than Item 7)			

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

**SOLICITATION**

9. Sealed offers in original and 4 copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in Bldg. 1100, Stennis Space Ctr, MS 39529-5004 until 3:30 local time 9 JUN 2003  
(Hour) (Date)

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section I, Provision No. 52.214-7 or 52.215-10. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME <b>Eric J. Sogard</b>
	B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) <b>(228)688-5980</b>

**11. TABLE OF CONTENTS**

(✓) SEC.	DESCRIPTION	PAGE(S)	(✓) SEC.	DESCRIPTION	PAGE(S)
PART I - THE SCHEDULE			PART II - CONTRACT CLAUSES		
<input checked="" type="checkbox"/> A	SOLICITATION/CONTRACT FORM	1	<input checked="" type="checkbox"/> I	CONTRACT CLAUSES	13-17
<input checked="" type="checkbox"/> B	SUPPLIES OR SERVICES AND PRICES/COSTS	2	PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH.		
<input checked="" type="checkbox"/> C	DESCRIPTION/SPECS./WORK STATEMENT	2	<input checked="" type="checkbox"/> J	LIST OF ATTACHMENTS	18
<input checked="" type="checkbox"/> D	PACKAGING AND MARKING	3	PART IV - REPRESENTATIONS AND INSTRUCTIONS		
<input checked="" type="checkbox"/> E	INSPECTION AND ACCEPTANCE	3	<input checked="" type="checkbox"/> K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	19
<input checked="" type="checkbox"/> F	DELIVERIES OR PERFORMANCE	4			
<input checked="" type="checkbox"/> G	CONTRACT ADMINISTRATION DATA	4-8	<input checked="" type="checkbox"/> L	INSTRS., CONDS., AND NOTICES-TO OFFERORS	20-26
<input checked="" type="checkbox"/> H	SPECIAL CONTRACT REQUIREMENTS	8-12	<input checked="" type="checkbox"/> M	EVALUATION FACTORS FOR AWARD	27-28

**OFFER (Must be fully completed by offeror)**

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within \_\_\_\_\_ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52-232-8)	10 CALENDAR DAYS	%	20 CALENDAR DAYS	%	30 CALENDAR DAYS	%	CALENDAR DAYS	%
14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated:	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE				

15A. NAME AND ADDRESS OF OFFEROR	CODE	FACILITY	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)
15B. TELEPHONE NO. (Include area code)	15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.		17. SIGNATURE
			18. OFFER DATE

**AWARD (To be completed by Government)**

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION
22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304(c) ( ) <input type="checkbox"/> 41 U.S.C. 253(c) ( )		23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)
24. ADMINISTERED BY (If other than Item 7)	CODE	25. PAYMENT WILL BE MADE BY
26. NAME OF CONTRACTING OFFICER (Type or print)		27. UNITED STATES OF AMERICA  (Signature of Contracting Officer)
		28. AWARD DATE

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

PART I - THE SCHEDULE  
SECTION B  
SUPPLIES OR SERVICES AND PRICES/COSTS

B-1 SUPPLIES/SERVICES AND COSTS

ITEM NUMBER	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	ESTIMATED COST PLUS FIXED FEE
0001	The Contractor shall provide the necessary personnel, equipment and facilities to accomplish the work as described in Section C.	\$	\$	\$
0002	Data in accordance with Exhibit A (DD 1423)	* NSP	* NSP	* NSP
<b>TOTAL ESTIMATED COST PLUS FIXED FEE:</b>		<b>\$</b>	<b>\$</b>	<b>\$</b>

\* *Not Separately Priced*

**NOTICE TO OFFERORS:** In addition to inserting the estimated cost and fixed fee for the base year above, the estimated cost and fixed fee for each optional extension of the term of the contract are to be inserted in Section H.

SECTION C  
DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

STATEMENT OF WORK

The work and services to be performed hereunder shall be subject to the requirements and standards contained in Attachment (1), Statement of Work, with Exhibit A, Contract Data Requirements List, and all other Attachments cited in Section J, which are incorporated by reference into Section C.

REQUIREMENTS FOR ON-SITE CONTRACTORS

For those portions of the work under this contract performed at any NRL site, the contractor shall comply with the Requirements for On-Site Contractors dated 08 October 2002 which are hereby incorporated by reference. The full text is available at <http://heron.nrl.navy.mil/contracts/home.htm>.

**SUBCONTRACTING PLAN**

Subcontracting Plan \_\_\_\_\_ dated \_\_\_\_\_ is hereby incorporated by reference and made a material part of this contract.

*(\*this provision will be included and completed at time of award, if applicable)*

**SECTION D  
PACKAGING AND MARKING****D-1 PACKAGING AND MARKING**

Preservation, packaging, packing and marking of all deliverable contract line items must conform to normal commercial packing standards to assure safe delivery at destination.

**SECTION E  
INSPECTION AND ACCEPTANCE****E-1 INSPECTION AND ACCEPTANCE CLAUSES INCORPORATED BY REFERENCE****FAR CLAUSE    TITLE**

52.246-8        -    Inspection Of Research And Development - Cost Reimbursement (MAR 2001)

**DFARS CLAUSE    TITLE**

252.246-7000   -    Material Inspection And Receiving Report (MAR 2003)

**E-2 INSPECTION AND ACCEPTANCE**

Inspection and acceptance of the final delivery will be accomplished by the Technical Manager (TM) or Contracting Officer Representative (COR) designated in Section G of this contract. Inspection and acceptance will be performed at the Naval Research Laboratory, Washington DC 20375-5320.

**SECTION F  
DELIVERIES OR PERFORMANCE**

**F-1 DELIVERIES OR PERFORMANCE CLAUSES INCORPORATED BY REFERENCE:**

**FAR CLAUSE    TITLE**

52.242-15    -    Stop-Work Order (AUG 1989) - Alternate I (APR 1984)  
52.247-34    -    F.O.B. Destination (NOV 1991)

**F-2 PERIOD AND PLACE OF PERFORMANCE**

- (a) The term of this contract is from the date of contract award through a period of twelve (12) months. The period of performance for each option, if exercised, shall be for a period of twelve (12) months.
- (b) The principal place of performance of this contract shall be the Naval Research Laboratory, Washington D.C.

**SECTION G  
CONTRACT ADMINISTRATION DATA**

**G-1 PROCURING OFFICE REPRESENTATIVE**

In order to expedite administration of the contract, the Administrative Contracting Officer (ACO) will direct inquiries to the appropriate office listed below. Please do not direct routine inquiries to the person listed in Item 20A on Standard Form 26.

Security Matters- Contracting Officer for Security, Code 1221, (228) 688-4049, DSN 485-4049, email [security-group@nrl.navy.mil](mailto:security-group@nrl.navy.mil)

Safety Matters- Head Safety Branch, Code 3540, (202) 767-2232, DSN 297-2232, email [safety@nrl.navy.mil](mailto:safety@nrl.navy.mil)

Patent Matters- Mr. Chester Jordan, Code 1008.3, (228) 688-5759, DSN 485-5759, email [cjordan@nrlssc.navy.mil](mailto:cjordan@nrlssc.navy.mil)

Release of Data-Public Affairs Officer, Code 1030 (202) 767-2541, DSN 297-2541, email [publicaffairs@nrl.navy.mil](mailto:publicaffairs@nrl.navy.mil)

**G-2 CONTRACTING OFFICER'S REPRESENTATIVE (COR) - FUNCTIONS AND LIMITATIONS**

\* is hereby designated the cognizant COR who will represent the Contracting Officer in the administration of technical details within the scope of this contract and inspection and acceptance. The COR is not otherwise authorized to make any representations or commitments of any kind on behalf of the Contracting Officer or the Government. The COR does not have the authority to alter the Contractor's obligations or change the specifications in the contract. If, as a result of technical discussions, it is desirable to alter contract obligations or statements of work, a modification must be issued in writing and signed by the Contracting Officer. The COR is responsible for reviewing the bills and charges submitted by the Contractor and informing the ACO of areas where exceptions are to be taken.

( \* To be completed at time of award)

**G-3 TECHNICAL DIRECTION MEMORANDUM (TDM)**

- (a) For the purposes of this clause, technical direction includes the following:
- (1) Direction to the Contractor which shifts work emphasis between work areas or tasks, requires pursuit of certain lines of inquiry, fills in details or otherwise describes work which will accomplish the objectives described in the statement of work;
  - (2) Guidelines to the Contractor, which assist in interpretation of drawings, specifications or technical portions of, work description.
- (b) Technical instructions must be within the scope of work stated in the contract. Technical instructions may not be used to:
- (1) Assign additional work under the contract;
  - (2) Direct a change as defined in the contract clause entitled "Changes";
  - (3) Increase or decrease the estimated contract cost, the fixed fee, or the time required for contract performance; or
  - (4) Change any of the terms, conditions or specifications of the contract
- (c) The TDM shall be written by the Contracting Officer's Representative (COR), with the original given to the Contractor and a copy retained in the CORs file. Technical direction may be issued orally only in emergency situations. If technical direction is issued orally, a TDM must follow within two (2) working days from the date of the oral direction. Amendments, corrections, or changes to TDMs shall also be in written format and shall include all the information set forth in paragraph (e) below.
- (d) A TDM shall be considered issued when the Government deposits it in the mail, or if transmitted by other means, when it is physically delivered to the contractor.
- (e) TDMs shall include, but not be limited to, the following information:
- (1) Date of TDM,
  - (2) Contract Number,
  - (3) Reference to the relevant portion or item in the Statement of Work,
  - (4) The specific technical direction or clarification, and
  - (5) The signature of the COR.
- (f) CORs shall retain all files containing TDMs for a period of two (2) years after the final contract completion date.
- (g) The only individual authorized in any way to amend or modify any of the terms of this contract shall be the Contracting Officer. When, in the opinion of the Contractor, any technical direction calls for effort outside the scope of the contract or inconsistent with this special provision, the Contractor shall notify the Contracting Officer in writing within ten (10) working days after its receipt.

**G-4 CONTRACTOR-ACQUIRED PROPERTY**

(a) The contractor is authorized to acquire the following items of facilities, which are needed to accomplish this contract.

Items to be Acquired	Estimated Cost
*	

*(\*this provision will be included and completed at time of award, if applicable)*

(b) This authorization does not constitute any consent required pursuant to the contract clause entitled "Subcontracts" (FAR 52.244-2). Advance notification or requests for consent pursuant to that clause shall be directed to the administrative contracting officer (ACO).

(c) Pursuant to the contract clause entitled "Government Property (Cost-Reimbursement, Time-and-Material, or Labor-Hour Contracts)" (FAR 52.245-5), title to the property shall vest in the Government.

(d) Prior to acquisition of any item of Industrial Plant Equipment, the Contractor must comply with the requirements of Department of Defense Federal Acquisition Regulation Supplement (DFARS 245.302-1(b)(1)(A). (See DFARS 245.301 for definition of "Industrial Plant Equipment.")

**G-5 SUBCONTRACTORS/CONSULTANTS**

(a) Advance notification or requests for consent pursuant to the contract clause entitled "Subcontracts" (FAR 52.244-2) shall be directed to the cognizant administrative contracting officer (ACO).

(b) The following subcontractors/consultants have been identified in the Contractor's proposal as necessary for performance of this contract:

Subcontractor/Consultant Name	Estimated Cost

*(Paragraph (b) will be included and filled in at time of award if subcontractor/consultants are proposed by the successful offeror)*

**G-6** NAPS 5252.232-9001 - SUBMISSION OF INVOICES (COST-REIMBURSEMENT, TIME-AND-MATERIALS, LABOR-HOUR, OR FIXED PRICE INCENTIVE (JUL 1992)

(a) "Invoice" as used in this clause includes contractor requests for interim payments using public vouchers (SF 1034) but does not include contractor requests for progress payments under fixed price incentive contracts.

(b) The Contractor shall submit invoices and any necessary supporting documentation, in an original and 4 copies, to the contract auditor at the following address:

*(To be completed at time of award)*

unless delivery orders are applicable, in which case invoices will be segregated by individual order and submitted to the address specified in the order. In addition, an information copy shall be submitted to [See Section G for designated COR]. Following verification, the contract auditor will forward the invoice to the designated payment office for payment in the amount determined to be owing, in accordance with the applicable payment (and fee) clause(s) of this contract.

(c) Invoices requesting interim payments shall be submitted no more than once every two weeks, unless another time period is specified in the Payments clause of this contract. For indefinite delivery type contracts, interim payment invoices shall be submitted no more than once every two weeks for each delivery orders. There shall be a lapse of no more than 30 calendar days between performance and submission of an interim payment invoice.

(d) In addition to the information identified in the Prompt Payment clause herein, each invoice shall contain the following information, as applicable:

- (1) Contract line item number (CLIN)
- (2) Subline item number (SLIN)
- (3) Accounting Classification Reference Number (ACRN)
- (4) Payment terms
- (5) Procuring activity
- (6) Date supplies provided or services performed
- (7) Costs incurred and allowable under the contract
- (8) Vessel (e.g., ship, submarine or other craft) or system for which supply/service is provided

(e) A DD Form 250, "Material Inspection and Receiving Report",

- is required with each invoice submittal.  
 is required only with the final invoice.  
 is not required.

(f) A Certificate of Performance

- shall be provided with each invoice submittal.  
 is not required.

(g) The Contractor's final invoice shall be identified as such, and shall list all other invoices (if any) previously tendered under this contract.

(h) Cost of performance shall be segregated, accumulated and invoiced to the appropriate ACRN categories to the extent possible. When such segregation of costs by ACRN is not possible for invoices submitted with CLIN/SLINS with more than one ACRN, an allocation ratio shall be established in the same ratio as the obligations cited in the accounting data so that costs are allocated on a proportional basis.

**G-7 INCREMENTAL FUNDING**

Pursuant to the Limitation of Funds clause (FAR 52.232-22), the total amount allotted to this contract is \$\* and it is estimated that this amount is sufficient for contract performance through \*.

*(\*this provision will be included and completed at time of award, if applicable)*

**G-8 INFORMATIONAL SUBLINE ITEMS**

It is anticipated that the research and development services performed under this contract will be paid for from multiple sources of funds. Informational subline items will be established as necessary to identify each accounting citation classification.

**G-9 SPECIAL PAYMENT INSTRUCTIONS- MULTIPLE ACCOUNTING CLASSIFICATION CITATIONS (COST-REIMBURSEMENT)**

Payments shall be made in accordance with the ACRN(s) cited on the contractor's invoice. The Contractor may contact the COR regarding which ACRN(s) to cite on an invoice.

**SECTION H  
SPECIAL CONTRACT REQUIREMENTS****H-1 TYPE OF CONTRACT**

This is a \*

*(\*To be completed at time of award)*

**H-2 ONR 5252.237-9705 - KEY PERSONNEL (DEC 88)**

(a) The Contractor agrees to assign to the contract tasks those persons whose resumes were submitted with its proposal and who are necessary to fulfill the requirements of the contract as "key personnel". No substitutions may be made except in accordance with this clause.

(b) The Contractor understands that during the first ninety (90) days of the contract performance period, no personnel substitutions will be permitted unless these substitutions are unavoidable because of the incumbent's sudden illness, death or termination of employment. In any of these events, the Contractor shall promptly notify the Contracting Officer and provide the information described in paragraph (c) below. After the initial ninety (90) day period the Contractor must submit to the Contracting Officer all proposed substitutions, in writing, at least thirty (30) days in advance (sixty (60) days if security clearance must be obtained) of any proposed substitution and provide the information required by paragraph (c) below.

(c) Any request for substitution must include a detailed explanation of the circumstances necessitating the proposed substitution, a resume for the proposed substitute, and any other information requested by the Contracting Officer. Any proposed substitute must have qualifications equal to or superior to the qualifications of the incumbent. The Contracting Officer or his/her authorized representative will evaluate such requests and promptly notify the Contractor of his/her approval or disapproval thereof.

(d) In the event that any of the identified key personnel cease to perform under the contract and the substitute is disapproved, the contract may be immediately terminated in accordance with the Termination clause of the contract.

The following are identified as key personnel: \*



expiration of the term hereof. The offer shall provide that the work proposed will be subject to the terms and conditions of this contract and any additions or changes required by then current law, regulations, or directives, and that the offer, with a written notice of acceptance by the Contracting Officer, shall constitute a binding contract. The Contractor shall not accelerate any effort until receipt of such written approval by the Contracting Officer. Any agreement to accelerate will be formalized by contract modification.

(e) The Contracting Officer may, by written order, direct the Contractor to accelerate the expenditure of direct labor such that the total hours of effort specified in paragraph (a) above would be used prior to the expiration of the term. This order shall specify the acceleration required and the resulting revised term. The Contractor shall acknowledge this order within five days of receipt.

(f) If the total level of effort specified in paragraph (a) above is not provided by the Contractor during the term of this contract, the Contracting Officer shall either (i) reduce the fixed fee of this contract as follows:

$$\text{Fee Reduction} = \text{Fixed Fee} \times \frac{(\text{Required LOE Hours} - \text{Expended LOE Hours})}{\text{Required LOE Hours}}$$

or (ii) subject to the provisions of the clause of this contract entitled "Limitation of Cost," require the Contractor to continue to perform the work until the total number of hours of direct labor specified in paragraph (a) shall have been expended, at no increase in the fixed fee of this contract.

(g) In the event the government fails to fully fund the contract in a timely manner, the term of the contract may be extended accordingly with no change to cost or fee. If the government fails to fully fund the contract, the fee will be adjusted in direct proportion to that effort which was performed.

(h) Notwithstanding any of the provisions in the above paragraphs, the Contractor may furnish hours up to five percent in excess of the total hours specified in paragraph (a) above, provided that the additional effort is furnished within the term hereof, and provided further that no increase in the estimated cost or fixed fee is required, and no adjustment in the fixed fee shall be made provided that the Contractor has delivered at least 95% of the level of effort required in paragraph (a) above.

(i) It is understood that the mix of labor categories provided by the Contractor under the contract, as well as the distribution of effort among those categories, may vary considerably from the initial mix and distribution of effort which was estimated by the government or proposed by the Contractor.

(j) Nothing herein shall be construed to alter or waive any of the rights or obligations of either party pursuant to the Clause entitled "Limitation of Costs" or "Limitation of Funds," either of which clauses as incorporated herein applies to this contract.

(k) The anticipated breakdown by labor category of the total level of effort is as follows:

<u>Labor Category</u>	<u>Hours</u>
Senior Research Scientist	18,720
Sr. Scientist	4,160
Research Scientist	10,400
Electrical Engineer	8,320
Mechanical Engineer	2,080
Engineering Technician	6,240
Computer Systems Manager	4,160
Analyst	4,160
Senior Machinist	2,080
Research Assistant	4,160
Senior Model Maker	2,080

**H-4 ONR 5252.235-9714 - REPORT PREPARATION (FEB 02)**

Scientific or technical reports prepared by the Contractor and deliverable under the terms of this contract will be prepared in accordance with format requirements contained in ANSI/NISO Z39.18-1995, Scientific and Technical Reports: Elements, Organization, and Design.

[NOTE: All NISO American National Standards are available as free, downloadable pdf(s) at <http://www.niso.org/standards/index.html> . NISO standards can also be purchased in hardcopy form from NISO Press Fulfillment, P. O. Box 451, Annapolis Junction, MD 20701-0451 USA. Telephone U.S. and Canada: (877) 736-6476; Outside the U.S. and Canada: 301-362-6904 ax: 301-206-9789.]

**H-5 ELECTRONIC AND INFORMATION TECHNOLOGY (EIT)**

In accordance with Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. 794d), all EIT supplies and services provided under this contract must comply with the applicable accessibility standards issued by the Architectural and Transportation Barriers Compliance Board at 36 CFR part 1194 (see FAR Subpart 39.2). Electronic and information technology (EIT) is defined at FAR 2.101.

**H-6 OPTION TO EXTEND THE TERM OF THE CONTRACT**

This contract shall be renewable at the unilateral option of the Government by the Contracting Officer giving written notice of renewal to the Contractor within the existing term of the contract. The Government may exercise its option to renew the contract a total of 4 times and each such renewal shall extend the term of the contract by twelve (12) months. The Contractor agrees that performance under each such renewal shall be accomplished in accordance with all of the terms and conditions of this contract and at the estimated cost and fixed fee set forth below:

**First Option**

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

**Second Option**

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

**Third Option**

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

**Fourth Option**

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

**H-7 ON-SITE USE OF GOVERNMENT PROPERTY**

Government facilities and equipment specified or approved for use in the performance of any portion of the contract at the U.S. Naval Research Laboratory (NRL) or any of its field sites may be used by the contractor's personnel on a rent free basis. All such property shall be considered to remain in the possession and control of the NRL for property responsibility and accountability purposes.

**H-8 GOVERNMENT-FURNISHED PROPERTY**

The following Government property will be furnished to the contractor on a rent-free basis for use in performing the contract:

- Acoustics Pool Facilities
- Air Acoustics Laboratory
- Optics Laboratory
- Low Temperature Laboratory
- Office and Laboratory Space (to include desks and benches as required)
- Computers
- Test Equipment
- Local Telephone

**H-9 REPRESENTATIONS AND CERTIFICATIONS**

The Contractor's completed Representations, Certifications, and Other Statements of Offerors or Respondents is incorporated herein by reference in any resultant award.

**H-10 SUBCONTRACTING PLAN**

The contractor's Comprehensive Small Business Subcontracting Plan is incorporated into this contract in accordance with DFARS SUBPART 219.7 *Test Program for Negotiation of Comprehensive Small Business Subcontracting Plans*.

**PART II - CONTRACT CLAUSES**  
**SECTION I**  
**CONTRACT CLAUSES**

**I-1 52.252-2 - CLAUSES INCORPORATED BY REFERENCE (FEB 1998)**

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://www.arnet.gov/far>

<http://heron.nrl.navy.mil/contracts/home.htm>

**a. FEDERAL ACQUISITION REGULATION CLAUSES**

<b>FAR CLAUSE</b>	<b>TITLE</b>
52.202-1	- Definitions (DEC 2001)
52.203-3	- Gratuities (APR 1984)
52.203-5	- Covenant Against Contingent Fees (APR 1984)
52.203-6	- Restrictions On Subcontractor Sales To The Government (JUL 1995)
52.203-7	- Anti-Kickback Procedures (JUL 1995)
52-203-8	- Cancellation, Rescission, And Recovery Of Funds For Illegal Or Improper Activity (JAN 1997)
52.203-10	- Price Or Fee Adjustment For Illegal Or Improper Activity (JAN 1997)
52.203-12	- Limitation On Payments To Influence Certain Federal Transactions (JUN 1997)
52.204-2	- Security Requirements (AUG 1996)
52.204-4	- Printed Or Copied Double-Sided On Recycled Paper (AUG 2000)
52.209-6	- Protecting The Government's Interest When Subcontracting With Contractors Debarred, Suspended, Or Proposed For Debarment (JUL 1995)
52.211-15	- Defense Priority And Allocation Requirements (SEP 1990)
52.215-2	- Audit And Records-Negotiation (JUN 1999)
52.215-2	- Audit And Records-Negotiation (JUN 1999) - Alternate II (APR 1998)
52.215-8	- Order Of Precedence - Uniform Contract Format (OCT 1997)
52.215-10	- Price Reduction For Defective Cost Or Pricing Data (OCT 1997)
52.215-11	- Price Reduction For Defective Cost Or Pricing Data - Modifications (OCT 1997)
52.215-12	- Subcontractor Cost Or Pricing Data (OCT 1997)
52.215-13	- Subcontractor Cost Or Pricing Data Modifications (OCT 1997)
52.215-14	- Integrity Of Unit Prices (OCT 1997)
52.215-15	- Pension Adjustments And Asset Reversions (DEC 1998)
52.215-17	- Waiver Of Facilities Capital Cost Of Money (OCT 1997) ( will be included if the successful offeror does not propose facilities capital cost of money)
52.215-18	- Reversion Or Adjustment Of Plans For Post-Retirement Benefits (PRB) Other Than Pensions (OCT 1997)
52.215-19	- Notification Of Ownership Changes (OCT 1997)
52.215-21	- Requirements For Cost Or Pricing Data Or Information Other Than Cost or Pricing Data -Modifications (OCT 1997)
52.216-7	- Allowable Cost And Payment (DEC 2002) (fill in <u>30th</u> )
52.216-8	- Fixed-Fee (MAR 1997)

- 52.216-11 - Cost Contract - No Fee (APR 1984)
- 52.216-15 - Predetermined Indirect Cost Rates (APR 1998)
- 52.219-4 - Notice Of Price Evaluation Preference For HUBZone Small Business Concerns (JAN 1999)  Offeror elects to waive the evaluation preference.
- 52.219-6 - Notice Of Total Small-Business Set-Aside (JUL 1996) - Alternate I (OCT 1995)
- 52.219-8 - Utilization Of Small Business Concerns (OCT 2000)
- 52.219-9 - Small Business Subcontracting Plan (JAN 2002) - Alternate II (OCT 2001)
- 52.219-16 - Liquidated Damages-Subcontracting Plan (JAN 1999)
- 52.222-2 - Payment For Overtime Premiums (JUL 1990) -The Use Of Overtime Is Authorized Under This Contract If The Overtime Premium Does Not Exceed "0"
- 52.222-3 - Convict Labor (AUG 1996)
- 52.222-20 - Walsh-Healey Public Contracts Act (DEC 1996)
- 52.222-21 - Prohibition Of Segregated Facilities (FEB 1999)
- 52.222-26 - Equal Opportunity (APR 2002)
- 52.222-35 - Equal Opportunity For Special Disabled Veterans, Veterans Of The Vietnam Era, And Other Eligible Veterans (DEC 2001)
- 52.222-36 - Affirmative Action For Workers With Disabilities (JUN 1998)
- 52.222-37 - Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, And Other Eligible Veterans (DEC 2001)
- 52.223-3 - Hazardous Material Identification And Material Safety Data (JAN 1997)
- 52.223-5 - Pollution Prevention And Right-To-Know Information (APR 1998)
- 52.223-6 - Drug-Free Workplace (MAY 2001)
- 52.223-10 - Waste Reduction Program (AUG 2000)
- 52.223-14 - Toxic Chemical Release Reporting (OCT 2000)
- 52.225-13 - Restrictions On Certain Foreign Purchases (JUL 2000)
- 52.227-1 - Authorization And Consent (JUL 1995)- Alternate I (APR 1984)
- 52.227-2 - Notice And Assistance Regarding Patent And Copyright Infringement (AUG 1996)
- 52.227-10 - Filing Of Patent Application- Classified Subject Matter (APR 1984)
- 52.227-11 - Patent Rights - Retention By The Contractor (Short Form) (JUN 1997)  
*(will be included if the successful offeror is a small business or a non-profit organization)*
- 52.227-12 - Patent Rights - Retention By The Contractor (Long Form) (JAN 1997)  
*(will be included if the successful offeror is not a small business or a non-profit organization)*
- 52.228-7 - Insurance - Liability To Third Persons (MAR 1996)
- 52.230-2 - Cost Accounting Standards (APR 1998)
- 52.230-3 - Disclosure And Consistency Of Cost Accounting Practices (APR 1998)
- 52.230-5 - Cost Accounting Standards - Educational Institutions (APR 1998)
- 52.230-6 - Administration Of Cost Accounting Standards (NOV 1999)
- 52.232-9 - Limitation On Withholding Of Payments (APR 1984)
- 52.232-17 - Interest (JUN 1996)
- 52.232-18 - Availability Of Funds (APR 1984)
- 52.232-20 - Limitation Of Cost (APR 1984) *(Applicable when the contract or task order is fully funded)*
- 52.232-22 - Limitation Of Funds (APR 1984) *(Applicable when the contract or task order is not fully funded)*
- 52.232-23 - Assignment Of Claims (JAN 1986) Alternate I (APR 1984)
- 52.232-25 - Prompt Payment (FEB 2002) Alternate I (FEB 2002)

- 52.232-33 - Payment By Electronic Funds Transfer-Central Contractor Registration (MAY 1999)
- 52.233-1 - Disputes (JUL 2002)
- 52.233-3 - Protest After Award (AUG 1996) - Alternate I (JUN 1985)
- 52.237-2 - Protection Of Government Buildings, Equipment And Vegetation (APR 1984)
- 52.237-3 - Continuity Of Services (JAN 1991)
- 52.242-1 - Notice Of Intent To Disallow Costs (APR 1984)
- 52.242-3 - Penalties For Unallowable Costs (MAY 2001)
- 52.242-4 - Certification of Final Indirect Costs (JAN 1997)
- 52.242-13 - Bankruptcy (JUL 1995)
- 52.243-2 - Changes - Cost-Reimbursement (AUG 1987) - Alternate V (APR 1984)
- 52.243-6 - Change Order Accounting (APR 1984)
- 52.243-7 - Notification Of Changes (APR 1984)fill in 30
- 52.244-2 - Subcontracts (AUG 1998) - Alternate I (AUG 1998)
- 52.244-5 - Competition In Subcontracting (DEC 1996)
- 52.244-6 - Subcontracts For Commercial Items (MAY 2002)
- 52.245-5 - Government Property (Cost-Reimbursement, Time-And-Material, Or Labor-Hour Contracts) (JAN 1986) (DEVIATION)
- 52.245-18 - Special Test Equipment (FEB 1993)
- 52.245-19 - Government Property Furnished "As-Is" (APR 1984)
- 52.246-23 - Limitation Of Liability (FEB 1997)
- 52.246-25 - Limitation Of Liability - Services (FEB 1997)
- 52.247-1 - Commercial Bill Of Lading Notations (APR 1984)
- 52.247-63 - Preference For U. S. Flag Carriers (JAN 1997)
- 52.249-6 - Termination (Cost-Reimbursement) (SEP 1996)
- 52.249-14 - Excusable Delays (APR 1984)
- 52.251-1 - Government Supply Sources (APR 1984)
- 52.252-6 - Authorized Deviations in Clauses (APR 1984)( fill in Defense Federal Acquisition Regulation Supplement (48 CFR Chapter 2))
- 52.253-1 - Computer Generated Forms (JAN 1991)

**b. DEPARTMENT OF DEFENSE FEDERAL ACQUISITION REGULATION CLAUSES**

**DFARS CLAUSE    TITLE**

- 252.201-7000 - Contracting Officer's Representative (DEC 1991)
- 252.203-7001 - Prohibition On Persons Convicted Of Fraud Or Other Defense Contract Related Felonies (MAR 1999)
- 252.203-7002 - Display Of DoD Hotline Poster (DEC 1991)
- 252.204-7000 - Disclosure Of Information (DEC 1991)
- 252.204-7003 - Control Of Government Personnel Work Product (APR 1992)
- 252.204-7004 - Required Central Contractor Registration (NOV 2001)
- 252.204-7005 - Oral Attestation Of Security Responsibilities (NOV 2001)
- 252.205-7000 - Provision Of Information To Cooperative Agreement Holders (DEC 1991)
- 252.209-7000 - Acquisition From Subcontractors Subject To On-Site Inspection Under The Intermediate-Range Nuclear Forces (INF) Treaty (NOV 1995)
- 252.209-7004 - Subcontracting With Firms That Are Owned Or Controlled By The Government Of A Terrorist Country (MAR 1998)

- 252.209-7005 - Reserve Officer Training Corps and Military Recruiting On Campus (JAN 2000)
- 252.215-7000 - Pricing Adjustments (DEC 1991)
- 252.215-7002 - Cost Estimating System Requirements (OCT 1998)
- 252.219-7003 - Small Business And Small Disadvantaged Business Subcontracting Plan (DoD Contracts) (APR 1996)
- 252.223-7001 - Hazard Warning Labels (DEC 1991)
- 252.223-7004 - Drug-Free Work Force (SEP 1988)
- 252.223-7006 - Prohibition On Storage And Disposal Of Toxic And Hazardous Materials (APR 1993)
- 252.225-7001 - Buy American Act And Balance Of Payments Program (MAR 1998)
- 252.225-7002 - Qualifying Country Sources As Subcontractors (DEC 1991)
- 252.225-7012 - Preference For Certain Domestic Commodities (FEB 2003)
- 252.225-7026 - Reporting Of Contract Performance Outside The United States (JUN 2000)
- 252.225-7031 - Secondary Arab Boycott Of Israel (JUN 1992)
- 252.225-7043 - Antiterrorism/Force Protection Policy For Defense Contractors Outside The United States (JUN 1998) (fill in : Naval Criminal Investigative Service (NCIS), Code 24, telephone, DSN 228-9113 or commercial (202)433-9113)
- 252.226-7001 - Utilization of Indian Organizations and Indian-Owned Economic Enterprises-DoD Contracts (SEP 2001)
- 252.227-7000 - Non Estoppel (OCT 1966)
- 252.227-7001 - Release Of Past Infringement (AUG 1984)
- 252.227-7013 - Rights In Technical Data -- Noncommercial Items (NOV 1995) - Alternate I (JUN 1995)
- 252.227-7014 - Rights In Noncommercial Computer Software And Noncommercial Computer Software Documentation (JUN 1995) - Alternate I (JUN 1995)
- 252.227-7016 - Rights In Bid Or Proposal Information (JUN 1995)
- 252.227-7019 - Validation Of Asserted Restrictions--Computer Software (JUN 1995)
- 252.227-7025 - Limitations On The Use Or Disclosure Of Government-Furnished Information Marked With Restrictive Legends (JUN 1995)
- 252.227-7026 - Deferred Delivery Of Technical Data Or Computer Software (APR 1988)
- 252.227-7027 - Deferred Ordering Of Technical Data Or Computer Software (APR 1988)
- 252.227-7030 - Technical Data--Withholding Of Payment (MAR 2000)
- 252.227-7034 - Patents--Subcontracts (APR 1984)
- 252.227-7036 - Declaration Of Technical Data Conformity (JAN 1997)
- 252.227-7037 - Validation Of Restrictive Markings On Technical Data (SEP 1999)
- 252.227-7039 - Patents--Reporting Of Subject Inventions (APR 1990)
- 252.231-7000 - Supplemental Cost Principles (DEC 1991)
- 252.232-7000 - Advanced Payment Pool (DEC 1991)
- 252.232-7003 - Electronic Submission Of Payment Requests (MAR 2003)
- 252.235-7010 - Acknowledgment Of Support And Disclaimer (MAY 1995)
- 252.235-7011 - Final Scientific Or Technical Report (SEP 1999)
- 252.242-7000 - Post Award Conference (DEC 1991)
- 252.242-7004 - Material Management And Accounting System (DEC 2000)
- 252.243-7002 - Requests For Equitable Adjustment (MAR 1998)
- 252.244-7000 - Subcontracts For Commercial Items And Commercial Components (DOD Contracts) (MAR 2000)
- 252.245-7001 - Reports Of Government Property (MAY 1994)

- 252.246-7001 - Warranty Of Data (DEC 1991)
- 252.247-7023 - Transportation Of Supplies By Sea (MAY 2002)
- 252.247-7024 - Notification Of Transportation Of Supplies By Sea (MAR 2000)  
(will be included if the successful offeror made a negative response to the inquiry at DFARS 252.247-7022)
- 252.251-7000 - Ordering From Government Supply Sources (OCT 2002)

**I-2 FAR 52.223-11 - OZONE-DEPLETING SUBSTANCES (MAY 2001)**

- (a) *Definitions.* "Ozone-depleting substance", as used in this clause, means any substance the Environmental Protection Agency designates in 40 CFR Part 82 as –
- (1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or
  - (2) Class II, including, but not limited to, hydrochlorofluorocarbons.

(b) The Contractor shall label products which contain or are manufactured with ozone-depleting substances in the manner and to the extent required by 42 U.S.C. 7671j (b), (c), and (d) and 40 CFR Part 82, Subpart E, as follows:

**WARNING**

Contains (or manufactured with, if applicable) \* \_\_\_\_\_, a substance(s)  
which harm(s) public health and environment by destroying ozone in the upper atmosphere.

\*The Contractor shall insert the name of the substance(s).

**PART III - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS**  
**SECTION J**  
**LIST OF ATTACHMENTS**

- J-1 Attachment (1) - Statement Of Work - 8 Pages, With Exhibit A - DD Form 1423, Contract Data Requirements List, 4 Pages.
- J-2 Attachment (2) – Personnel Qualifications, 4 Pages.
- J-3 Attachment (3) - DD Form 254, Contract Security Classification Specification, Dated 20030415
- J-4 Attachment (4 ) – Accounting and Appropriation Data- 1 page. \*  
(\* To be included at time of award)

**PART IV - REPRESENTATIONS AND INSTRUCTIONS  
SECTION - K  
REPRESENTATIONS, CERTIFICATIONS  
AND OTHER STATEMENTS OF OFFERORS OR RESPONDENTS**

**K-1** Representations, Certifications, and Other Statements of Offerors or Respondents  
**Each Offeror must submit a completed Representations, Certifications, and Other Statements Of Offerors or Respondents with its proposal which is available electronically in full text at [HTTP://HERON.NRL.NAVY.MIL/CONTRACTS/REPS&CERTS.HTM](http://HERON.NRL.NAVY.MIL/CONTRACTS/REPS&CERTS.HTM)**  
Use Representations and Certifications: A

**K-2** FILL IN FOR FAR 52.219-1 - SMALL BUSINESS PROGRAM REPRESENTATIONS (MAR 2001)

**The fill in information is as follows:**

The NAICS code for this acquisition is 541710

The small business size standard is 500 employees.

**SECTION L  
INSTRUCTIONS CONDITIONS AND NOTICES  
TO OFFERORS OR RESPONDENTS**

**L-1 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)**

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

<http://www.arnet.gov/far>

<http://heron.nrl.navy.mil/contracts/home.htm>

**FAR CLAUSE TITLE**

52.204-6	-	Data Universal Numbering System (DUNS) Number (JUNE 1999)
52.214-34	-	Submission Of Offers In The English Language (APR 1991)
52.214-35	-	Submission Of Offers In U.S. Currency (APR 1991)
52.215-1	-	Instructions To Offerors- Competitive Acquisition (MAY 2001)
52.215-16	-	Facilities Capital Cost Of Money (OCT 1997)
52.222-24	-	Preaward On-Site Equal Opportunity Compliance Evaluation (FEB 1999)
52.237-10	-	Identification Of Uncompensated Overtime (OCT 1997)

**DFAR CLAUSE TITLE**

252.209-7001-	-	Disclosure Of Ownership Or Control By The Government Of A Terrorist Country (MAR 1998)
252.211-7005	-	Substitutions For Military Or Federal Specifications And Standards (FEB 2003)

**L-2 INSTRUCTIONS FOR SUBMISSION OF PROPOSALS/OFFERS**

All proposals shall be submitted in accordance with FAR 52.215-1- *Instructions to Offerors- Competitive Acquisition*. Proposals/offers submitted in paper media through the United States Postal Service (USPS) or delivery services shall be addressed to:

Contracting Officer, ATTN: Code 3235  
Naval Research Laboratory -SSC (NRL-SSC)  
Stennis Space Center, MS 39529-5004

Solicitation/RFP No. - N00173-03-R-SE04

Closing Date: 09 JUN 2003 Time 1530

Proposals may be hand delivered to the Contracting Office, NRL-SSC, Stennis Space Center, MS 39529-5004, Building 1007 between the hours of 8AM until 3:30PM, local time, excluding weekends and federal holidays. NRL is a controlled-access facility. Photo identification will be required. Report to Security Gate for access to NRL. All offerors shall allow sufficient time for delivery of their proposal to the Contracting Office prior to the closing date and time announced in the solicitation.

**L-3 FAR 52.211-14 - NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (SEP 1990)**

Any contract awarded as a result of this solicitation will be a  DX rated order;  DO rated order certified for national use under the Defense Priorities and Allocations system (DPAS) (15 CFR 700), and the Contractor will be required to follow all of the requirements of this regulation.

**L-4 FAR 52.215-20 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA (OCT 1997)ALTERNATE IV (OCT 1997)**

- (a) Submission of cost or pricing data is not required.
- (b) Provide information as described below in Section L-13

**L-5 FAR 52.216-1 - TYPE OF CONTRACT (APR 1984)**

The Government contemplates award of a Cost Plus Fixed Fee - Term contract resulting from this solicitation.

**L-6 FAR 52.233-2 - SERVICE OF PROTEST (AUG 1996)**

(a) Protests, as defined in Section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO) shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from the Control Desk, Code 3200, Bldg. 222, Rm. 115, Naval Research Laboratory, 4555 Overlook Ave., S.W., Washington DC 20375-5326.

- (b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

**L-7 DFARS 252.227-7017 - IDENTIFICATION AND ASSERTION OF USE, RELEASE, OR DISCLOSURE RESTRICTIONS (JUN 1995)**

- (a) The terms used in this provision are defined in following clause or clauses contained in this solicitation—
  - (1) If a successful offeror will be required to deliver technical data, the Rights in Technical Data--Noncommercial Items clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.
  - (2) If a successful offeror will not be required to deliver technical data, the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.
- (b) The identification and assertion requirements in this provision apply only to technical data, including computer software documents, or computer software to be delivered with other than unlimited rights. For contracts to be awarded under the Small Business Innovative Research Program, the notification requirements do not apply to technical data or computer software that will be generated under the resulting contract. Notification and identification is not required for restrictions based solely on copyright.

- (c) Offers submitted in response to this solicitation shall identify, to the extent known at the time an offer is submitted to the Government, the technical data or computer software that the Offeror, its subcontractors or suppliers, or potential subcontractors or suppliers, assert should be furnished to the Government with restrictions on use, release, or disclosure.
- (d) The Offeror's assertions, including the assertions of its subcontractors or suppliers or potential subcontractors or suppliers shall be submitted as an attachment to its offer in the following format, dated and signed by an official authorized to contractually obligate the Offeror:

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software.

The Offeror asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data or computer software should be restricted:

Technical Data Computer Software to be Furnished With Restrictions*	Basis for Assertion **	Asserted Rights Category ***	Name of Person Asserting Restrictions****
(List)*****	(List)	(List)	(List)

\* For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such items, component, or process. For computer software or computer software documentation identify the software or documentation.

\*\* Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions. For technical data, other than computer software documentation, development refers to development of the item, component, or process to which the data pertain. The Government's rights in computer software documentation generally may not be restricted. For computer software, development refers to the software. Indicate whether development was accomplished exclusively or partially at private expense. If development was not accomplished at private expense, or for computer software documentation, enter the specific basis for asserting restrictions.

\*\*\* Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited, restricted, or government purpose rights under this or a prior contract, or specially negotiated licenses).

\*\*\*\* Corporation, individual, or other person, as appropriate.

\*\*\*\*\* Enter "none" when all data or software will be submitted without restrictions.

Date \_\_\_\_\_

Printed Name and Title \_\_\_\_\_

Signature \_\_\_\_\_

(End of identification and assertion)

- (e) An offeror's failure to submit, complete, or sign the notification and identification required by paragraph (d) of this provision with its offer may render the offer ineligible for award.
- (f) If the Offeror is awarded a contract, the assertions identified in paragraph (d) of this provision shall be listed in an attachment to that contract. Upon request by the Contracting Officer, the Offeror shall provide sufficient information to enable the Contracting Officer to evaluate any listed assertion.

**L-8 DFARS 252.227-7028 - TECHNICAL DATA OR COMPUTER SOFTWARE PREVIOUSLY DELIVERED TO THE GOVERNMENT (JUN 1995)**

The Offeror shall attach to its offer an identification of all documents or other media incorporating technical data or computer software it intends to deliver under this contract with other than unlimited rights that are identical or substantially similar to documents or other media that the Offeror has produced for, delivered to, or is obligated to deliver to the Government under any contract or subcontract. The attachment shall identify - -

- (a) The contract number under which the data or software were produced;
- (b) The contract number under which, and the name and address of the organization to whom, the data or software were most recently delivered or will be delivered; and
- (c) Any limitations on the Government's rights to use or disclose the data or software, including, when applicable, identification of the earliest date the limitations expire.

**L-9 GOVERNMENT-FURNISHED PROPERTY**

No material, labor, or facilities will be furnished by the Government unless provided for in the solicitation.

**L-10 INQUIRIES CONCERNING THE RFP**

Any questions concerning the RFP must be submitted in writing to the Contracting Officer at the location noted in blocks 7 and 9 of the Standard Form 33, "Solicitation, Offer and Award," no less than fifteen (15) days before closing. The Government will not consider questions received after this date. Offerors are cautioned against directing any questions concerning this RFP to technical personnel at the Naval Research Laboratory.

**L-11 PROPOSAL ORGANIZATION**

(1) Information for the technical/management proposal shall be placed in Volume I and be completely separate from the business proposal (Volume II).

(2) Proposal Format and Length - No attempt is made to restrict the proposal format and style. However, the proposal should be written and organized so as to be compatible with the RFP, the Statement of Work, company's organization and accounting structure, and proposed cost estimate. Offerors are encouraged to use recycled paper and maximize the use of double sided copying when preparing responses to solicitations.

## L-12 VOLUME I - TECHNICAL/MANAGEMENT PROPOSAL

REQUIRED COPIES: 1 ORIGINAL AND 4 COPIES.

(a) Include a matrix indicating proposed labor hours by skill category required to perform the statement of work. This matrix shall not contain labor rates or any other indication of price. The Contractor shall propose labor hours in accordance with the level of effort breakdown identified in Section H-3.

(b) The following information is required for evaluation of your technical/management:

(1) PERSONNEL QUALIFICATIONS

The offeror shall provide evidence that it has, or has the ability to obtain, personnel with relevant experience in the scientific and technical areas described in Attachment (1) Statement of Work and the required qualifications set forth in Attachment (2) Personnel Qualifications. The offeror shall document the experience, education and other qualifications of all personnel proposed to accomplish the technical requirements. As a minimum, the offeror shall provide for each proposed individual (i) name of the proposed individual; (ii) proposed labor category, coinciding with labor categories listed in Section H.3.; (iii) resume, and (iv) status of current or ability to obtain a security clearance. Key personnel shall be identified as such.

(2) PAST PERFORMANCE INFORMATION

(a) Offerors shall submit the following information as part of their proposal. (*Offerors are encouraged to submit the information prior to other parts of the proposal to assist the government in reducing the length of the evaluation period.*) List the last five contracts or subcontracts completed by the offeror or predecessor companies during the past three years for services similar in nature to this requirement. Include in the five any current contracts or subcontracts for similar services that were awarded at least one year prior to the date of this solicitation. Offerors that have no similar previous or current contracts should provide the requested information for proposed subcontractors that will perform major or critical aspects of the requirement or for the proposed project manager or key personnel responsible for major or critical aspects of the requirement.

1. Name of contracting organization.
2. Contract number
3. Contract type
4. Total contract value
5. Description of the contract work
6. Contracting officer and telephone number
7. Contracting officer's representative, program manager, or similar official and telephone number

(b) Offerors shall contact the contracting organizations identified pursuant to paragraph (a) as soon as possible and request them to send past performance information on the identified contracts to the address in Block 7 of the face page of this solicitation. The past performance report which is available electronically in full text at <http://heron.nrl.navy.mil/contracts/home.htm> is to be provided to the contracting organization for this purpose. If the contracting organization has already collected past performance information on the contract pursuant to FAR Subpart 42.15, the format used to collect the information may be used instead of the past performance report.

(c) Offerors may include in their proposals specific information relating to problems encountered in performing the identified contracts and any corrective actions by the offeror. Offerors should not provide general information on their performance on the identified contracts as this will be obtained from the contracting organizations.

(3) COMPANY EXPERIENCE/RESOURCES

(a) The Offeror must provide documentation on recent in-house corporate experience similar and relevant to the work required under this solicitation as detailed in the Statement of Work, Attachment (1). This documentation shall discuss in detail the relationship between the company's experience and the tasks required under the Statement of Work and the particular sciences involved. Specifically, list previous or current Government or other than government contract(s). This prior experience should be identified by citing the contracting agency, contract number, period of performance of the contract and a summary of the nature of the work. This documentation should also include corporate management experience, approach to personnel staffing, contract reporting, and subcontract management/coordination pursuant to requirements detailed in Attachment (1) Statement of Work.

(b) The offeror shall describe and document those resources which the firm will make available for contract performance (e.g., financial, human, real and intangible property).

**L-13 VOLUME II - BUSINESS PROPOSAL**

REQUIRED COPIES: 1 ORIGINAL AND 2 COPIES

(1) COST PROPOSAL

The offeror shall submit a business proposal that includes a cost proposal with supporting information for each cost element consistent with offeror's cost accounting system. The supporting breakdown should include such elements as materials, direct labor, indirect cost, and other costs such as travel. The offeror shall provide exhibits as necessary to substantiate each cost element. Should rates be used in the proposal which are not DCAA approved, the offeror shall provide complete documentation and the rationale for their use at time of proposal submission. However, offerors are advised to use actual labor rates of proposed personnel as the basis for estimating labor costs when practicable.

(2) MATERIALS – FOR EVALUATION PURPOSES ONLY

The offeror shall include a "Material" estimate of \$350,000.00, unburdened, per year for materials supplies and equipment to be procured in performance of this contract. The "Materials" estimate includes parts, components and supplies, which are required for implementation of work described in the SOW.

All material procured under this contract shall be approved by the COR listed in Section G-2.

(3) TRAVEL – FOR EVALUATION PURPOSES ONLY

The offeror shall include a "Travel" estimate of \$40,000.00, unburdened, per year for travel and subsistence involved in performance of this effort.

All travel under this contract shall be approved by the COR listed in Section G-2.

(4) SMALL BUSINESS PARTICIPATION

(a) In addition to complying with the clause at FAR 52.219-9, Small Business Subcontracting Plan (JAN 2002) with its Alternate II (OCT 2000), proposals must include information to permit evaluation of the extent of participation of small businesses and historical black colleges or universities and minority institutions in performance of the contract. Participation to be identified may be in the form of a joint venture, teaming arrangement, or subcontract. Small business concerns that are not required by FAR 52.219-9 to submit a subcontracting plan must indicate the extent to which proposed joint ventures, teaming arrangements, or subcontracts are with historically black colleges or universities and minority institutions. Information provided should include the extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.

(b) Proposals must also include information to permit evaluation of the extent of participation of small disadvantaged business concerns in performance of the contract. See the provision at FAR 52.219-24, Small Disadvantaged Business Participation Program--Targets (OCT 2000), and the clause at 52.219-25, Small Disadvantaged Business Participation Program--Disadvantaged Status and Reporting (OCT 1999). Any targets will be incorporated into and become part of any resulting contract. Information provided should include the extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.

## SECTION M EVALUATION FACTORS FOR AWARD

### M-1 EVALUATION

Award will be made to that offeror whose proposal is determined to be the best value to the Government, proposed cost and other factors considered. The Government reserves the right to make award to other than the low offeror. Although technical considerations are more important than the cost factor, the closer the technical scores of the various proposals are to one another, the more important the business considerations become. The Government anticipates awarding a contract without discussions, but reserves the right to conduct discussions if it is determined by the Contracting Officer to be necessary. Any such discussions will be conducted following evaluations only with those offerors determined to have a reasonable chance of award.

### M-2 EVALUATION FACTORS FOR AWARD

Proposals will be evaluated in accordance with the following criteria. The technical factor is more important than the cost factor. The technical factor Personnel Qualifications is more important than Past Performance and Company Experience, which are of equal importance. Each technical factor allows higher scores for quality.

#### M-2-1. TECHNICAL/MANAGEMENT

##### (a) PERSONNEL QUALIFICATIONS

The proposals will be evaluated on the offeror's demonstrated ability to provide personnel with (i) the appropriate qualifications set forth in Attachment (2), Personnel Qualifications; (ii) actual relevant experience in the scientific and technical areas set forth in Attachment (1) Statement of Work, these are highly specialized fields and personnel without actual experience in these areas will not be considered acceptable; and (iii) the ability to obtain a SECRET clearance prior to commencing work

##### (b) PAST PERFORMANCE

Past performance will be evaluated on the basis of the quality of the work performed, timeliness of performance, cost control, and business relations. The evaluation will be based on the information provided pursuant to Section L and other sources if available. The evaluation will take into account past performance information regarding predecessor companies, subcontractors that will perform major or critical aspects of the requirement, or the proposed project manager or key personnel responsible for major or critical aspects of the requirement. Offerors that have no relevant performance history or for which past performance information is not available will not be evaluated favorably or unfavorably on past performance. The government may begin proposal evaluation prior to receipt of past performance information. If, after completion of proposal evaluation except evaluation of past performance, the contracting officer determines that evaluation of past performance will not affect the outcome of competitive selection, the contracting officer may waive its evaluation in accordance with FAR 15.304(c)(3)(iv).

### (c) COMPANY EXPERIENCE/RESOURCES

The proposal will be evaluated on the offeror's demonstrated company experience in performing projects requiring scientific and technical efforts which are similar or related to the effort required by the Statement of Work and on company resources available. Specifically, the proposal will be evaluated on the offeror's ability to demonstrate experience in each of the following areas: 1) previous experience in the specific scientific and technical areas identified in Attachment (1), 2) corporate management experience or approach to personnel staffing, contract reporting, subcontract management/coordination, 3) resources available for contract performance (e.g., financial, human, real and intangible property).

### M-2-2 COST TO THE GOVERNMENT

Proposed estimated cost to the Government. The Government may adjust the proposed cost for purposes of evaluation based upon an evaluation of cost realism. Cost Realism means that the costs in an offeror's proposal are realistic for the work to be performed; reflect a clear understanding of the requirements; and are consistent with the various elements of the offeror's technical proposal. The cost realism evaluation includes an analysis of the adequacy of the hours, labor mix, and other direct costs to perform the work as proposed in the technical proposal as well as the proposed labor and indirect rates. It also includes evaluation of the likelihood that the risks inherent in the offeror's technical approach will result in higher actual costs than anticipated.

### M-2-3 SMALL BUSINESS PARTICIPATION

(a) The extent of participation of small businesses and historically black colleges or universities and minority institutions in performance of the contract will be evaluated on the basis of the proposed extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.

(b) The extent of participation of small disadvantaged business concerns in performance of the contract will be evaluated on the basis of the proposed extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.

### M-3 FAR 52.217-5 - EVALUATION OF OPTIONS (JUL 1990)

Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

**STATEMENT OF WORK**  
**FOR**  
**NAVAL RESEARCH LABORATORY**  
Laboratory Based Acoustic Techniques Studies  
17 MAR 2003

## 1. INTRODUCTION

### *Background*

1.1 The Physical Acoustics Branch carries out theoretical and experimental studies of acousto-elastic systems and parameters by means of physical techniques, and of physical systems and parameters by means of acousto-elastic techniques. The theoretical programs are carried out in acoustics, in acousto-elastic interactions and in structural acoustics. A primary area of focus is acousto-elastic scattering and radiation. In this regard techniques are utilized to model the elastic vibration of fluid-loaded structures and the resulting scattered and radiated fields. In particular there is an interest in modeling the response of complex structures of arbitrary geometry over a frequency range for which such modeling has not previously been possible. This entails the development of radically new approaches and formulations. Other topics currently of interest include: 1) inverse scattering, and optimization, and 2) image enhancement, detection, identification, and automated target recognition.

1.2 The experimental programs are carried out in a laboratory setting with a number of at-sea components involving technology demonstration objectives. A large component of the work is carried out in three holographically-based acoustic pool facilities developed and operated by NRL, and its low temperature phonon-microstructure laboratory. Major focuses include structural acoustics of large scale, complex systems and the elasto-dynamics of micro-structures. The fundamental studies are complemented by more applied programs, which include programs on fiber-optic sensors, high-Q oscillators, target model studies, submarine acoustic design, buried mine identification, anechoic coating, acoustic visualization, and aircraft interior acoustic noise reduction.

1.3 In addition, the Physical Acoustics Center program provides a synergistic technology transfer between NRL and university research groups.

1.4 NRL Code 7130 requires use of this contractor in its mission to carry out the theoretical and experimental studies listed above.

## 2. Scope

2.1 In carrying out the above programs, the Physical Acoustics Branch invents, develops, implements, and upgrades a number of acoustic measurement techniques and facilities. Examples include: the Branch's new structural acoustics air facility and acoustic scattering pool facilities with their associated robotic scanners, near field holography processing systems, and digital processing and display equipment; the Branch's low temperature crystal resonator and micro-oscillator laboratory; the Branch's state-of-the-art scanning LDV and NSOM laboratory; the Branch's fiber optic/electro-optic sensor system laboratory; several unique at-sea measurements systems; and the Branch's computer network servicing these various facilities.

2.2 Associated with these facilities and relevant programs are a number of technical tasks and studies which can be carried out best over the next five years by a qualified contractor having access to the appropriate technical staff. The tasks fall into ten major technical/engineering areas, namely:

- a. Development and upgrading of state-of-the-art mechanical/electrical/optical data acquisition systems;
- b. Development and/or implementation of new acoustic, structural acoustic, and vibratory device and measurement techniques, and subsequent demonstration of their performance;
- c. Scale modeling support;
- d. Engineering support for active control systems;
- e. Material properties characterization;
- f. Development implementation of new numerical analysis software compatible with computers available to Code 7130.
- g. Finite-element/infinite element/variational methods;
- h. Detection, identification, and target recognition techniques.
- i. Engineering support for multi-element, cell-based arrays;
- j. Measurement support for the dynamics of micro and nano structures.

### 2.3 Management, Control, and Reporting

The Contractor shall provide the management, control, and reporting functions necessary to manage, direct, control, and track the accomplishment of the SOW efforts. The Contractor management, control, and reporting efforts shall support all tasks required under the SOW. The Contractor shall designate one employee to serve as the Project Leader/Project Manager. This manager shall be the point of contact for all technical performance issues, receiving direction from and providing responses to the Contracting Officer's Representative (COR) in accordance with Sections G-2 and G-3. Additionally, the Government desires that one or more on-site employees be designated with the responsibility of supervising and directing the Contractor's on-site employees. The Contractor shall maintain liaison with COR and shall keep the COR well informed of contract efforts (i.e., technical, managerial, financial) with reports, by telephone, and on-site visits. The Contractor shall prepare and submit periodic reports on the management, control, and reporting functions in accordance with Exhibit A, DD1423 Contract Data Requirements List.

### 3. REQUIREMENT TASKS

#### TASK 1 – UPGRADES AND IMPROVEMENTS TO ACOUSTIC LABORATORIES AND PROGRAMS

The Contractor shall design, develop, validate and implement upgrades and improvements to the acoustic laboratories and data processing programs. The work required under this task shall include, but may not be limited to:

a. implementation of state-of-the-art robotic systems and measurement techniques compatible with NRL's In-Air Structural Acoustics Laboratory, NRL's major Near Field Holography Pool Facilities, its unique at-sea measurement systems; and the Branch's micro/nano structures mechanical dynamics laboratories. This shall include, but may not be limited to, development of robotic scanner technology compatible with an all optic-fiber contact probe which extracts in-plane and normal components of shell vibrations;

b. measurements of underwater and in-air structural vibration fields;

c. development and implementation of improvements to conformal scan technologies, which shall include, but may not be limited to, complex structural and solid geometries and those geometries that are not separable;

d. implementation of scattering measurement techniques based upon development by NRL of new conformal holographic sound reconstruction for complex geometries;

e. implementation of data acquisition, signal processing and display systems for use in "at-sea" environments and

f. implementation of data acquisition, signal processing and display systems for use "in-flight" to support aircraft interior noise research efforts.

g. development and implementation of data acquisition, signal processing, and display systems for use in the nano-mechanics and low temperature high Q resonator laboratories.

#### TASK 2 – INTEGRATED SOUND AND VIBRATION SOURCES AND PRESSURE/VIBRATION SENSORS

The Contractor shall implement advanced sensor and actuation technologies and concepts developed by NRL scientists and engineers in various laboratory fixtures for the purpose of enabling NRL experimental studies. These technologies would include fiber optic, MEMS, and conventional sensor technologies together with poly and single crystal piezoelectric actuation technologies. The sensor devices will be interfaced to wireless, optical, and conventional electrical telemetry systems.

#### TASK 3 – PHYSICAL SCALE MODELING

The Contractor shall carry out engineering and technician efforts to aid in designing and fabricating physical models of sufficient fidelity to replicate the full-scale linear acoustic phenomena of surface and subsurface platforms. The work to be performed under this task shall include, but may not be limited to, fabricating models of both ships and submarines that include various amounts of the internal complexity. This may require the creation of new approaches that expand the use of automated fabrication techniques and processes.

#### TASK 4 – NON-CONTACT MOTION MEASUREMENT TECHNIQUES

The Contractor shall employ suitable measurement techniques, assist NRL in conducting experiments, generate processing and display software, and develop databases pursuant to investigating the use of non-contact motion measurements techniques in such disparate areas as the littoral ocean bottom itself and other complex physical systems such as micro-resonators and micro-voided polymers. The work to be performed under this task shall include, but may not be limited to, (a) employment of multi-axis laser Doppler vibrometry (LDV) surface measurements; Magnetic Resonance Imaging (MRI) techniques to extract 3-D volumetric motions; and e-beam interferometry.

#### TASK 5 - ACTIVE CONTROL OF STRUCTURAL ACOUSTIC AND STRUCTURAL DYNAMIC PHENOMENA

The Contractor shall carry out design and construction engineering efforts to NRL's specifications for active control of structural acoustic and structural dynamic phenomena on a number of physical systems. The work to be performed under this task shall involve, but may not be limited to, (a) mechanical trusses, (b) fluid-loaded shells, and (c) aerospace shells and container structures. The required effort shall include, but may not be limited to, (a) demonstration of the performance realized by NRL-developed control concepts; (b) development of software for reduction of plant data and for derivation of control filters; (c) creation of software and hardware for carrying out control experiments and demonstrations; and (d) assembly level programming of systems which shall include, but may not be limited to, a multi-channel Motorola 96002-based controller system.

#### TASK 6 – SOFTWARE DEVELOPMENT, TESTING, AND DEMONSTRATION

The Contractor shall write software packages to address NRL's specified calculations and test, demonstrate, and deliver with documentation these software packages to NRL for efficient numerical calculation on NRL specified hardware. The functions required from any software developed under this task shall include, but may not be limited to, formation of numerical solutions based upon acoustic echo and radiation formation, structural acoustic formalisms, and models developed to describe the mechanical dynamics of high Q resonators developed by the Naval Research Laboratory.

#### TASK 7 – MEASUREMENT OF ACOUSTO-ELASTIC, ACOUSTO-MAGNETIC, ACOUSTO-ELECTRIC, AND ACOUSTO-OPTIC MATERIAL PROPERTIES

The Contractor shall design and fabricate equipment in order to perform measurements of acousto-elastic, acousto-optic, acousto-electric, and acousto-magnetic properties in material systems. Work performed under this task shall include, but may not be limited to, (a) development of system software as required to reduce the data and provide meaningful displays of resulting behavior; (b) construction and calibration of special-purpose acoustic sources/actuators and sensors essential for these measurements; and (c) construction of special composite systems to analyze the limitations of the measurement procedures.

#### TASK 8 – TESTING OF NEW FORMALISMS

The Contractor shall carry out studies to test new structural acoustic formalisms and associated techniques developed by NRL. Work to be performed under this task shall include, but may not be limited to, (a) testing of new formalisms and techniques for inverse acoustic processing and scattering/radiation problems, (b) application of the new NRL developed formalisms and techniques to various experimentally/numerically generated databases; and (c) application of the new NRL formalisms and techniques for modeling acoustic scattering and radiation from elastic structures in the mid-frequency region.

#### TASK 9 – DATA VISUALIZATION TECHNIQUES

The Contractor shall apply existing experimental and numerical modeling capabilities to (a) develop data visualization techniques for observing results of underwater and in-air acoustic experiments and numerical models; and (b) develop post experiment analysis tools to assist in the validation of such data.

#### TASK 10 – EVALUATION OF CLASSIFICATION AND IDENTIFICATION ALGORITHMS AND CONCEPTS

The Contractor shall design and author software to evaluate NRL developed concepts for detection, classification, identification, and localization of acoustic targets. The methods under development by NRL include, but are not limited to, structural acoustic fingerprint ID, HMM based ID, object wave diffraction methods, and inverse scattering.

#### TASK 11 – INVESTIGATION OF FIBER OPTIC SENSOR AND TELEMETRY TECHNOLOGY

The Contractor shall carry out engineering and technician efforts in the evaluation of the use of fiber optic sensor and telemetry technology for use in underwater and in-air acoustic and vibration experimental studies. The work to be performed under this task shall include, but may not be limited to, (a) novel fiber sensor geometries such as flexible sheets and fiber bundle point probes; (b) combined optical/piezoelectric sensor devices for special applications; (c) non-contact probes for the measurement of in-plane and out-of-plane motions of fluid-loaded vibrating shells, plates, and other structures; and (d) investigation of structural strain sensors able to provide effective filtering against unwanted wave number components.

#### TASK 12 – WIRELESS SENSOR ARRAY TECHNIQUES

The contractor shall carry out RF engineering efforts in support of cellular-based multi-element sensor array concepts that will be developed and exploited by NRL for implementing very high- count MEMS sensor arrays. Such sensor systems could be applied to Near Field Holography scanning systems, submarine sensor systems, and AUV platforms.

### TASK 13 – DEVELOPMENT OF ADVANCED MULTI-ELEMENT STRAIN/DISPLACEMENT SENSOR TECHNOLOGIES

The Contractor shall evaluate multiple strain sensor technologies for use in physical acoustic research. The required technologies shall be robust, deployable, and stable. In the case of fiber sensor technologies, they shall be polarization insensitive, and they shall take advantage of distributed sensing methodologies. The work to be performed under this task shall include, but may not be limited to, (a) design of NRL specified 2-D and 3-D imbedded arrays for characterization of Littoral bottom sound speeds; (b) design, fabrication and testing of NRL specified multi-element arrays as acoustic holography tools for Littoral research; and surface arrays for use in fault detection and identification.

### TASK 14 – PERFORM ENGINEERING EFFORTS DURING SCUBA EXERCISES

The Contractor shall provide expert engineering-related scuba diving services. The work to be performed under this task shall include, but may not be limited to, diving exercises to install new equipment and modify existing apparatus in-water, such as attachment of new laser Doppler vibrometer probes to in-water robots already deployed.

### TASK 15 – MICRO-NANO STRUCTURES STUDIES

The contractor shall conduct NRL designed and specified studies in the area concerning the acoustic, ultrasonic, elastic, and vibratory response of micro and nano structures. This work will include both theoretical and experimental studies (some at Sub-Kelvin temperatures) of MEMS, NEMS, and nano-tubule systems. The work includes, but is not limited to, the following examples: the implementation of advanced sub-micron vibration probes based on nearfield optical fiber sensors; based on measurements made on the micro-nano structures, the testing of a physics based understanding of the mechanical dynamics of these micro and nanostructures including such things as the intrinsic vibratory dissipation mechanisms, mechanical energy coupling amongst the various components, and energy localization; and utilization of suitable approaches to obtain appropriate micro and nano structures for the experimental studies. The Contractor shall also perform NRL specified measurements involving high frequency phonon propagation. Work to be performed under this task shall include (a) measurement involving high frequency phonon propagation in thin film and other microstructures; and (b) analysis of resulting measurement data to optimize microstructure pursuant to tailoring behavior of high frequency phonon mechanisms.

### TASK 16 - ORDER-ADAPTIVE FINITE-ELEMENT/BOUNDARY-ELEMENT (FE/BE) MODEL

The Theoretical Acoustics Section is in the process of developing an order-adaptive finite-element/infinite element model for scattering and radiation. The contractor will develop the required order-adaptive solid finite elements. These elements must be hierarchic and order-adaptive. The contractor will develop the requisite infinite elements. The contractor will develop mesh generation and error estimation capabilities. The contractor will develop the formalism and implement the algorithm in such a form as to be compatible with completed portions of the adaptive FE model resident at NRL, and with the assistance of NRL employees, will interface his/her code with the existing code. The contractor will also identify and evaluate strategies to allow these codes to be highly parallelized in order to be compatible with multiple processor computation engines.

#### TASK 17 - PROPERLY INSTRUMENTED AUV'S FOR ACOUSTIC STUDIES

Hardware and software engineering will be carried out to support the creation of instrumentation for autonomous underwater vehicles used in acoustic MCM related research. New low frequency sonar equipment required to demonstrate new NRL-developed MCM concepts will be designed, built, tested, and installed on the vehicles. Further, the vehicles will be taken to sea and used in measurement exercises where data will be collected, retrieved, post processed and analyzed. This processing analysis will involve the authoring of software to automate unique NRL-developed identification algorithms developed as part of NRL's ongoing research in this area.

#### TASK 18 - NEW AT-SEA MEASUREMENT TECHNOLOGIES AND SYSTEMS

Hardware and software engineering will be carried out to create and use instrumentation for MCM research in the low frequency regime. Towards this end, new "rail based" acoustics scanners will be created that mimic the trajectories of AUV vehicles. This new mechanical scanning equipment together with the associated data acquisition equipment will be taken to sea and used in measurement exercises where data will be collected, retrieved, post processed and analyzed. As part of this effort, new low frequency environmental acoustic databases will be collected to enable NRL to analyze and characterize the propagation of acoustic energy in shallow water multi-path rich environments.

#### TASK 19 - TECHNOLOGY TRANSFER

a. The contractor will transfer all techniques and methodologies developed under the contract to NRL with documentation. This transfer shall be progressive throughout the course of the contract.

b. The contractor will conduct seminars and technical meetings for NRL personnel to expedite the transfer of information to NRL employees. The contractor will provide frequent demonstrations of software under development. The contractor will be responsible for procuring equipment necessary for this technology transfer, including visual aid equipment, work stations, and word processing hardware and software.

#### TASK 20 - SOFTWARE DEVELOPMENT

a. The contractor will develop computer implementations of the techniques, approaches, and formulations which are developed. All software developed under this task shall become the property of NRL, to release or retain as determined by NRL personnel.

b. NRL will provide computer time on the Physical Acoustics Branch computer network. The contractor will be responsible for procuring the hardware and software required to access the network, including modems and terminals, as well as I/O equipment required at the contractor site, such as printers, plotters, and work stations, and the associated software.

c. At the conclusion of the contract the contractor will transfer all such acquired hardware and software to the Theoretical Acoustics Section at the Naval Research Laboratory.

#### TASK 21 - DOCUMENTATION AND TRAINING

The contractor will document all software and hardware developed under this contract in accordance with Exhibit A, DD1423 Contract Data Requirements List and applicable contract clauses under section I.



# CONTRACT DATA REQUIREMENTS LIST

(2 Data Items)

Form Approved  
OMB No. 0704-0188

The public reporting burden for this collection of information is estimated to average 110 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to the above address. Send completed form to the Government Issuing Contracting Officer for the Contract/PR No. listed in Block E.

<b>A. CONTRACT LINE ITEM NO.</b> 0002		<b>B. EXHIBIT</b> A		<b>C. CATEGORY:</b> TDP _____ TM _____ OTHER _____				
<b>D. SYSTEM / ITEM</b>			<b>E. CONTRACT / PR NO.</b> 71-3000-03		<b>F. CONTRACTOR</b>			
<b>1. DATA ITEM NO.</b> A003	<b>2. TITLE OF DATA ITEM</b> Software, Algorithms, Programs, documentation, instructions and Source Code			<b>3. SUBTITLE</b>				
<b>4. AUTHORITY (Data Acquisition Document No.)</b>		<b>5. CONTRACT REFERENCE</b> 0002, H-5, SOW Section 3		<b>6. REQUIRING OFFICE</b> COR (See contract G-2)				
<b>7. DD 250 REQ</b> LT	<b>9. DIST STATEMENT REQUIRED</b>	<b>10. FREQUENCY</b> As Required		<b>12. DATE OF FIRST SUBMISSION</b> *				
<b>8. APP CODE</b>		<b>11. AS OF DATE</b> *		<b>13. DATE OF SUBSEQUENT SUBMISSION</b> *				
<b>16. REMARKS</b> *Shall include all computer programs/software, upgrades, algorithms, object, source and executable codes, draft and final user documentation developed under this contract. Delivery shall be made as required by the COR.				<b>14. DISTRIBUTION</b>				
				<b>a. ADDRESSEE</b>	<b>b. COPIES</b>			
					<b>Draft</b>	<b>Final</b>		
						<b>Reg</b>	<b>Repro</b>	
				<b>15. TOTAL</b> →	2			

  

<b>1. DATA ITEM NO.</b> A004		<b>2. TITLE OF DATA ITEM</b> Technical Reports		<b>3. SUBTITLE</b>				
<b>4. AUTHORITY (Data Acquisition Document No.)</b>		<b>5. CONTRACT REFERENCE</b> 0002, H-4, SOW 2.3, 3		<b>6. REQUIRING OFFICE</b> COR (See contract G-2)				
<b>7. DD 250 REQ</b> LT	<b>9. DIST STATEMENT REQUIRED</b>	<b>10. FREQUENCY</b> *		<b>12. DATE OF FIRST SUBMISSION</b> *				
<b>8. APP CODE</b>		<b>11. AS OF DATE</b> *		<b>13. DATE OF SUBSEQUENT SUBMISSION</b> *				
<b>16. REMARKS</b> *As required by the COR, submitted periodically for the purpose of reporting progress, may be in the form of technical report and/or presentations. Reprints of publications may be acceptable as technical reports with concurrence of the COR. For technical reporting containing scientific or technical distribution shall include Code 5227***.				<b>14. DISTRIBUTION</b>				
				<b>a. ADDRESSEE</b>	<b>b. COPIES</b>			
					<b>Draft</b>	<b>Final</b>		
						<b>Reg</b>	<b>Repro</b>	
				<b>15. TOTAL</b> →	3			

  

<b>G. PREPARED BY</b> NRL-SSC Code 3235		<b>H. DATE</b>	<b>I. APPROVED BY</b>	<b>J. DATE</b>
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<b>17. PRICE GROUP</b>
<b>18. ESTIMATED TOTAL PRICE</b>

<b>17. PRICE GROUP</b>
<b>18. ESTIMATED TOTAL PRICE</b>





## 1. PERSONNEL QUALIFICATIONS

The following paragraphs set forth the minimum requirements deemed necessary to perform the tasks set forth in the Statement of Work. The Contractor shall be capable of providing the personnel as directed by the Contracting Officer's Representative (COR) according to level-of-effort requirements in the following labor categories and with the experience indicated. Those personnel designated, as "key" shall be available for work efforts on the first day after contract award. Furthermore, key personnel must possess a Secret clearance at the time of contract award and are subject to the provisions listed in Section H-2 of the solicitation. All proposed personnel must be capable of obtaining a Secret clearance.

## 2. Labor Categories and Qualifications

### 2.1. (Key) Sr. Research Scientist(s)

#### Research Scientist – Category A

Shall as a minimum possess (a) a Ph.D. in physics or engineering with emphasis in dynamics of high Q mechanical systems and microstructuring, (b) at least five years post graduate experience in experimental studies of these structures including at very low temperature (sub-Kelvin)

#### Research Scientist - Category B

Shall as a minimum possess (a) a Ph.D in mathematical physics, mathematics or physics, (b) at least five years experience with outstanding expertise in the mathematics underlying finite-element and infinite-element and variational methods, and (c) Demonstrable experience in the application of these methods to acousto-elastic scattering

#### Research Scientist - Category C

Shall as a minimum possess (a) a Ph.D in physics, engineering, or mathematics, (b) at least five years experience with expertise in the finite element methods and error analysis and (c) demonstrable experience in the application of the error analysis to the structures problem.

#### Research Scientist - Category D

Shall as a minimum possess (a) a Ph.D in physics, engineering, or mathematics, (b) at least 3 years of experience with expertise in finite element analysis and mesh generation and (c) demonstrable experience in mesh generation for structural problems.

#### Research Scientist - Category E

Shall as a minimum possess a Ph.D. in physics, engineering, or mathematics with at least 3 years experience with expertise in computational mechanics or signal processing.

## **2.2. (Key) Senior Scientist**

This Senior Scientist category shall as a minimum provide (a) demonstrable qualifications as an internationally recognized expert in the fields of Computational mechanics, Finite-element/infinite-element methods, Inverse structural acoustics and Target detection, recognition or imaging, (b) possess a Ph.D. in physics, engineering or mathematics and (c) have at least ten years experience in the fields listed above.

## **2.3. (Key) Sr. Research Scientist in Physical/Structural Acoustics**

The Senior Research Scientist in Physical/Structural Acoustics shall as a minimum possess (a) a Ph.D. in physics or engineering with emphasis in Physical and Structural Acoustics, (b) at least ten years experience in conducting theoretical/experimental research on complex phenomena employing advanced theoretical/numerical analysis tools, and (c) a demonstrable records of publications in scientific journals relevant to Physical and Structural Acoustics.

## **2.4. Research Scientist(s)**

### **Research Scientist - Category A**

Shall as a minimum possess (a) a BS degree in engineering or physics, (b) at least two (2) years of experience in acoustic scattering and radiation measurements, (c) a demonstrable background in physical theory with at least one (1) year of digital signal processing experience and (d) demonstrable knowledge of data reduction and display techniques.

### **Research Scientist - Category B**

Shall as a minimum possess (a) a PhD degree in physics or engineering with a proficiency in mathematical analysis and a strong FORTRAN scientific programming capability, (b) at least (5) five years experience in: physical-acoustics/structural-acoustics, acoustical-classification and identification, acoustical-imaging, numerical methods in physics, and mathematical analysis techniques and (c) demonstrable knowledge of FORTRAN.

### **Research Scientist - Category C**

Shall as a minimum possess (a) a Ph.D. in physics or engineering with emphasis on structural acoustics, (b) at least five (5) years experience designing and executing sophisticated structural acoustics and structural dynamics measurements using sensor arrays, acoustic holography techniques, and Laser Doppler Vibrometer Scans, (c) demonstrable experience with analysis techniques that include wavenumber domain processing tools and (d) demonstrable experience in the design of vibration generation devices with collocated sensing and active control techniques.

### **Research Scientist - Category D**

Shall as a minimum possess a Ph.D., MS, or BS in physics, engineering, mathematics, or computer science.

## **2.5. Electrical Engineer(s)**

### Electrical Engineer - Category A

Shall as a minimum possess (a) a MS degree in engineering, (b) at least two (2) years experience in fiber analog and digital design, (c) demonstrable evidence of adeptness in state-of-the-art RF communications technology including wireless networks and (d) demonstrable expertise in acoustic measurement techniques and experience in the areas of phase demodulation, computer interfacing, and software generation.

### Electrical Engineer - Category B

Shall as a minimum possess (a) a Ph.D degree in engineering or physics, (b) at least four (4) years experience, (c) demonstrable expert experience in digital design and analog circuit design, (c) at least three years experience in digital signal processing, (d) at least one year of experience in implementation of algorithms with the Texas Instruments, Inc., TMS-320 DSP technology and (e) demonstrable experience with FORTRAN programming and automated circuit design tools.

### Electrical Engineer - Category C

Shall as a minimum possess (a) a BS degree in engineering, (b) at least ten (10) years experience with at least four years project management experience, (c) at least five years of digital and analog design experience, (d) at least five years experience in FORTRAN programming of process control functions under the VXI, CAMAC (IEEE-583) and IEEE-488 standards, (e) demonstrable expert knowledge of data acquisition systems design for acoustic scattering and radiation studies as well as optical interferometric based systems and (f) demonstrable knowledge of digital signal processing and data display.

### Electrical Engineer - Category D

Shall as a minimum possess (a) a BS degree in engineering, (b) evidence of significant experience in signal processing and active control, (c) demonstrable expert knowledge of modern (state space) control techniques and (d) evidence of significant knowledge of mine submarine structural acoustics required

## **2.6. Mechanical Engineer(s)**

The Mechanical Engineer(s) shall as a minimum possess (a) a Masters degree or equivalent in mechanical engineering, (b) demonstrable design experience with ships and submarine architectures, (c) evidence of practical implementation experience for acoustics and vibrations measurements, (d) demonstrable knowledge of composite material theory and construction.

## **2.7. Engineering Technician(s)**

### Engineering Technician - Category A

Shall as a minimum possess (a) demonstrable experience in designing and building special electronics for physical acoustics research projects which shall include, but may not be limited to experience with high-density diode arrays for multi-sensor signal capture, analog and digital data acquisition system for sensor signal detection schemes.

### Engineering Technician - Category B

Shall as a minimum possess (a) at least ten (10) years experience in making general sonar measurements with expert knowledge of analog and digital measurement techniques for vibrational/acoustic experiments, and (b) demonstrable skills in electronic assembly with emphasis in analog construction .

### Engineering Technician – Category C

Shall as a minimum possess (a) demonstrable fabrication skills including experience with designing and fabricating sophisticated measurement systems for laboratory and at sea experiments using robotic assemblies and (b) demonstrable experience with a CAD design package.

## **2.8. Computer System Manager(s)**

### Computer Systems Manager – Category A

Shall as a minimum possess (a) at least 5 years of experience in VAX/VMS systems administration, including software upgrades and user training, (b) demonstrable expertise in the development of DCL control files and in VAX hardware troubleshooting, (c) demonstrable experience in Macintosh systems setup and administration, (d) demonstrable experience in setting up Windows computers and Additional duties would require two (2) years experience with computer generated graphics, specifically using the Adobe software suite.

### Computer Systems Manager – Category B

Shall as a minimum possess (a) at least five (5) five years experience as a Network Manager with the emphasis on heavily instrumented PC based systems, (b) demonstrable experience regular maintenance and periodic upgrades to PC based systems, and (c) a least 4 years experience with administration of VAX and UNIX based networked systems.

## **2.9. Senior Machinist**

Senior Machinist(s) shall as a minimum possess (a) at least 5 five years experience in performing R&D machining tasks to engineering tolerance, (b) demonstrable ability to work from formal drawings/sketches and verbal instructions and (c) demonstrable ability to design and fabricate hardware for use in the testing and measurements of material properties and various sensor responses.

## **2.10. Senior Model Maker**

Senior Model Maker(s) shall as a minimum possess (a) at least 5 five years experience in performing R&D machining tasks to engineering tolerance, (b) demonstrable ability to work from formal drawings/sketches and verbal instructions, (c) demonstrable ability to design and fabricate hardware for use in the testing and measurements of material properties and various sensor responses and (d) at least five year's experience in small scale modeling of naval-like structures.

## **2.11. Analyst:**

Analyst(s) shall as a minimum posses (a) a High School diploma, (b) demonstrable experience in data entry, report preparation, and documentation of research data classification, and (c) demonstrable ability to catalog reports, software packages and equipment literature.

## **2.12. Research Assistant**

Research Assistant(s) shall as a minimum possess BS or BA degrees.

<b>DEPARTMENT OF DEFENSE CONTRACT SECURITY CLASSIFICATION SPECIFICATION</b> <i>(The requirements of the DoD Industrial Security Manual apply to all security aspects of this effort.)</i>				<b>1. CLEARANCE AND SAFEGUARDING</b> a. FACILITY CLEARANCE REQUIRED <p style="text-align: center;"><b>SECRET</b></p> b. LEVEL OF SAFEGUARDING REQUIRED <p style="text-align: center;">N/A</p>	
<b>2. THIS SPECIFICATION IS FOR:</b> <i>(X and complete as applicable)</i>			<b>3. THIS SPECIFICATION IS:</b> <i>(X and complete as applicable)</i>		
<b>X</b>	a. PRIME CONTRACT NUMBER <p style="text-align: center;">71-3000-03</p>		<b>X</b>	a. ORIGINAL <i>(Complete date in all cases)</i> DATE (YYYYMMDD) <p style="text-align: center;">20030415</p>	
	b. SUBCONTRACT NUMBER			b. REVISED <i>(Supersedes all previous specs)</i> REVISION NO. DATE (YYYYMMDD)	
	c. SOLICITATION OR OTHER NUMBER DUE DATE (YYYYMMDD)			c. FINAL <i>(Complete Item 5 in all cases)</i> DATE (YYYYMMDD)	
<b>4. IS THIS A FOLLOW-ON CONTRACT?</b> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO. If Yes, complete the following: Classified material received or generated under <u>N00173-98-D-6005</u> <i>(Preceding Contract Number)</i> is transferred to this follow-on contract.					
<b>5. IS THIS A FINAL DD FORM 254?</b> <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO. If Yes, complete the following: In response to the contractor's request dated _____, retention of the classified material is authorized for the period of _____.					
<b>6. CONTRACTOR</b> <i>(Include Commercial and Government Entity (CAGE) Code)</i>					
a. NAME, ADDRESS, AND ZIP CODE  FOR RFP PURPOSES ONLY, NOT VALID FOR ACTUAL CONTRACT		b. CAGE CODE	c. COGNIZANT SECURITY OFFICE <i>(Name, Address, and Zip Code)</i>		
<b>7. SUBCONTRACTOR</b>					
a. NAME, ADDRESS, AND ZIP CODE  N/A		b. CAGE CODE	c. COGNIZANT SECURITY OFFICE <i>(Name, Address, and Zip Code)</i>		
<b>8. ACTUAL PERFORMANCE</b>					
a. LOCATION  U.S. Navy Naval Research Laboratory 4555 Overlook Avenue, S.W. Washington, DC 20375-5320		b. CAGE CODE  N/A	c. COGNIZANT SECURITY OFFICE <i>(Name, Address, and Zip Code)</i>  N/A		
<b>9. GENERAL IDENTIFICATION OF THIS PROCUREMENT</b>  LABORATORY BASED ACOUSTIC TECHNIQUES STUDIES.					
<b>10. CONTRACTOR WILL REQUIRE ACCESS TO:</b>		YES NO	<b>11. IN PERFORMING THIS CONTRACT, THE CONTRACTOR WILL:</b>		YES NO
a. COMMUNICATIONS SECURITY (COMSEC) INFORMATION			a. HAVE ACCESS TO CLASSIFIED INFORMATION ONLY AT ANOTHER CONTRACTOR'S FACILITY OR A GOVERNMENT ACTIVITY		<input checked="" type="checkbox"/>
b. RESTRICTED DATA		<input checked="" type="checkbox"/>	b. RECEIVE CLASSIFIED DOCUMENTS ONLY		<input checked="" type="checkbox"/>
c. CRITICAL NUCLEAR WEAPON DESIGN INFORMATION		<input checked="" type="checkbox"/>	c. RECEIVE AND GENERATE CLASSIFIED MATERIAL		<input checked="" type="checkbox"/>
d. FORMERLY RESTRICTED DATA		<input checked="" type="checkbox"/>	d. FABRICATE, MODIFY, OR STORE CLASSIFIED HARDWARE		<input checked="" type="checkbox"/>
e. INTELLIGENCE INFORMATION			e. PERFORM SERVICES ONLY		<input checked="" type="checkbox"/>
(1) Sensitive Compartmented Information (SCI)		<input checked="" type="checkbox"/>	f. HAVE ACCESS TO U.S. CLASSIFIED INFORMATION OUTSIDE THE U.S., PUERTO RICO, U.S. POSSESSIONS AND TRUST TERRITORIES		<input checked="" type="checkbox"/>
(2) Non-SCI		<input checked="" type="checkbox"/>	g. BE AUTHORIZED TO USE THE SERVICES OF DEFENSE TECHNICAL INFORMATION CENTER (DTIC) OR OTHER SECONDARY DISTRIBUTION CENTER		<input checked="" type="checkbox"/>
f. SPECIAL ACCESS INFORMATION		<input checked="" type="checkbox"/>	h. REQUIRE A COMSEC ACCOUNT		<input checked="" type="checkbox"/>
g. NATO INFORMATION		<input checked="" type="checkbox"/>	i. HAVE TEMPEST REQUIREMENTS		<input checked="" type="checkbox"/>
h. FOREIGN GOVERNMENT INFORMATION		<input checked="" type="checkbox"/>	j. HAVE OPERATIONS SECURITY (OPSEC) REQUIREMENTS		<input checked="" type="checkbox"/>
i. LIMITED DISSEMINATION INFORMATION		<input checked="" type="checkbox"/>	k. BE AUTHORIZED TO USE THE DEFENSE COURIER SERVICE		<input checked="" type="checkbox"/>
j. FOR OFFICIAL USE ONLY INFORMATION		<input checked="" type="checkbox"/>	l. OTHER <i>(Specify)</i>		<input checked="" type="checkbox"/>
k. OTHER <i>(Specify)</i>					

12. PUBLIC RELEASE. Any information (classified or unclassified) pertaining to this contract shall not be released for public dissemination except as provided by the Industrial Security Manual or unless it has been approved for public release by appropriate U.S. Government authority. Proposed public releases shall be submitted for approval prior to release  Direct  Through (Specify)

Commanding Officer, Naval Research Laboratory Detachment, Code 7130, Stennis Space Center, Bay St. Louis, MS 39529-5004

to the Directorate for Freedom of Information and Security Review, Office of the Assistant Secretary of Defense (Public Affairs)\* for review.  
 \*In the case of non-DoD User Agencies, requests for disclosure shall be submitted to that agency.

13. SECURITY GUIDANCE. The security classification guidance needed for this classified effort is identified below. If any difficulty is encountered in applying this guidance or if any other contributing factor indicates a need for changes in this guidance, the contractor is authorized and encouraged to provide recommended changes; to challenge the guidance or the classification assigned to any information or material furnished or generated under this contract; and to submit any questions for interpretation of this guidance to the official identified below. Pending final decision, the information involved shall be handled and protected at the highest level of classification assigned or recommended. (Fill in as appropriate for the classified effort. Attach, or forward under separate correspondence, any documents/guides/extracts referenced herein. Add additional pages as needed to provide complete guidance.)

1. Specifically designated contractor personnel assigned to this contract must possess DOD granted personnel security clearances commensurate with level of access required. Access based on interim clearances must be approved by the official named in Block 16a. The number of clearances requested from DSS must be limited; it is anticipated that the number of clearances required for actual work on this contract will not exceed \_\_\_\_\_.
2. Any subcontract DD254s issued incident to this contract must be approved by the official shown in Block 16a.
3. Need-to-Know certification for visit requests to other DOD and/or contractor facilities or for obtaining documents/information, will be processed through the official named in Block 16a.
4. COR for this contra Joseph Bucaro, NRLSSC Code 7130, (202) 767-2491

14. ADDITIONAL SECURITY REQUIREMENTS. Requirements, in addition to ISM requirements, are established for this contract.  Yes  No  
 (If Yes, identify the pertinent contractual clauses in the contract document itself, or provide an appropriate statement which identifies the additional requirements. Provide a copy of the requirements to the cognizant security office. Use Item 13 if additional space is needed.)

15. INSPECTIONS. Elements of this contract are outside the inspection responsibility of the cognizant security office.  Yes  No  
 (If Yes, explain and identify specific areas or elements carved out and the activity responsible for inspections. Use Item 13 if additional space is needed.)

16. CERTIFICATION AND SIGNATURE. Security requirements stated herein are complete and adequate for safeguarding the classified information to be released or generated under this classified effort. All questions shall be referred to the official named below.

a. TYPED NAME OF CERTIFYING OFFICIAL David R. Anderson	b. TITLE Contracting Officer's Security Representative	c. TELEPHONE (Include Area Code) 228-688-4049
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d. ADDRESS (Include Zip Code)  
 Naval Research Laboratory Detachment, Stennis Space Center,  
 Bay St. Louis, MS 39529-5004

e. SIGNATURE  


17. REQUIRED DISTRIBUTION
- |                                     |   |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | a. CONTRACTOR   |
| <input type="checkbox"/>            | b. SUBCONTRACTOR  |
| <input checked="" type="checkbox"/> | c. COGNIZANT SECURITY OFFICE FOR PRIME AND SUBCONTRACTOR          |
| <input type="checkbox"/>            | d. U.S. ACTIVITY RESPONSIBLE FOR OVERSEAS SECURITY ADMINISTRATION |
| <input checked="" type="checkbox"/> | e. ADMINISTRATIVE CONTRACTING OFFICER                             |
| <input checked="" type="checkbox"/> | f. OTHERS AS NECESSARY 7030.1                                     |