AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES	
U	1	2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
16	14-Aug-2017	FY2017 Lapsing funds	N/A

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE	
	N00164			S2404A

NSWC, CRANE DIVISION
300 Highway 361 - Building 3373
Crane IN 47522-5001
donna.reynolds@navy.mil 812-854-6104

DCMA Manassas
14501 George Carter Way, 2nd Floor
Chantilly VA 20151

SCD: C

8. NAME AND ADDRESS OF CONTRACTOR *(No., street, county, State, and Zip Code)*

Harris Corporation
12975 Worldgate Drive, Suite 700
Herndon VA 20170

CAGE CODE 9M715 | FACILITY CODE

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED *(SEE ITEM 11)*

[X]

10A. MODIFICATION OF CONTRACT/ORDER NO.
N00178-05-D-4395-FC01

10B. DATED *(SEE ITEM 13)*
12-Aug-2009

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[ ] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [ ] is extended, [ ] is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:
(a) By completing Items 8 and 15, and returning one (1) copy of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

SEE SECTION G

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(*)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: *(Specify authority)* THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
[ ]	
[X]	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES *(such as changes in paying office, appropriation date, etc.)*SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b). FAR 43.103 (a)(3) Mutual agreement
[ ]	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
[ ]	D. OTHER *(Specify type of modification and authority)*

E. IMPORTANT: Contractor [X] is not, [ ] is required to sign this document and return __ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION *(Organized by UCF section headings, including solicitation/contract subject matter where feasible.)*

SEE PAGE 2

15A. NAME AND TITLE OF SIGNER *(Type or print)*		16A. NAME AND TITLE OF CONTRACTING OFFICER *(Type or print)*	
		Donna J Reynolds, Contracting Officer	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
		BY /s/Donna J Reynolds	14-Aug-2017
(Signature of person authorized to sign)		*(Signature of Contracting Officer)*	

GENERAL INFORMATION

[redacted]

The Line of Accounting information is hereby changed as follows:

The total amount of funds obligated to the task is hereby decreased from [redacted]

NERP LINE	CLIN/SLIN	Type Of Fund	From ($)	By ($)	To ($)
150	410203	RDT&E	[redacted]	[redacted]	[redacted]
160	410204	RDT&E	[redacted]	[redacted]	[redacted]
260	410205	RDT&E	[redacted]	[redacted]	[redacted]
170	410301	RDT&E	[redacted]	[redacted]	[redacted]
180	480202	RDT&E	[redacted]	[redacted]	[redacted]
190	480203	RDT&E	[redacted]	[redacted]	[redacted]
200	480301	RDT&E	[redacted]	[redacted]	[redacted]
230	610301	RDT&E	[redacted]	[redacted]	[redacted]
240	680301	RDT&E	[redacted]	[redacted]	[redacted]

The total value of the order is hereby increased from [redacted]

A conformed copy of this Task Order is attached to this modification for informational purposes only.

SECTION B SUPPLIES OR SERVICES AND PRICES

CLIN - SUPPLIES OR SERVICES

For Cost Type Items:

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost	Fixed Fee	CPFF
4101	R425	LABOR Phase 1 - Task 1 Digital/ Photonic Techniques Generator R&D Support for NGAEAEC Project in accordance with the attached SOW (RDT&E)	1.0	LO			
410101	R425						
410102	R425						
410103	R425						
4102	R425	LABOR Phase 2 - Task 1 Digital/ Photonic Techniques Generator R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO			
410201	R425						
410202	R425						
410203	R425						
410204	R425						
410205	R425						
4103	R425	LABOR Phase 3 - Task 1 Digital/ Photonic Techniques Generator R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO			

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost	Fixed Fee	CPFF
410302	R425	[redacted]					
4104	R425	LABOR Phase 4 - Task 1 Digital/ Photonic Techniques Generator R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	[redacted]	[redacted]	
410401	R425	[redacted]					
410402	R425	[redacted]					
410403	R425	[redacted]					
4201	R425	LABOR Phase 1 - Task 2 Digital/ Photonic Beamforming R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
4202	R425	LABOR Phase 2 - Task 2 Digital/ Photonic Beamforming R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4203	R425	LABOR Phase 3 - Task 2 Digital/ Photonic Beamforming R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4204	R425	LABOR Phase 4 - Task 2 Digital/ Photonic Beamforming R&D Support for NGAEA EC Project IAW the atttached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4301	R425	LABOR Phase 1 - Task 3 RF Power Amplifier Modules R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
4302	R425	LABOR Phase 2 - Task 3 RF Power Amplifier Modules R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4303	R425	LABOR Phase 3 - Task 3 RF Power Amplifier Modules R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost	Fixed Fee	CPFF
		Option					
4304	R425	LABOR Phase 4 - Task 3 RF Power Amplifier Modules R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4401	R425	LABOR Phase 1 - Task 4 Antenna Arrays R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
4402	R425	LABOR Phase 2 - Task 4 Antenna Arrays R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4403	R425	LABOR Phase 3 - Task 4 Antenna Arrays R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4404	R425	LABOR Phase 4 - Task 4 Antenna Arrays R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4501	R425	LABOR Phase 1 - Task 5 Low Band Antennas and Amplifiers R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4502	R425	LABOR Phase 2 - Task 5 Low Band Antennas and Amplifiers R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4601	R425	LABOR - Task 6 Prime Power Generation R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4701	R425	LABOR - Task 7 Cooling R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00	$0.00	$0.00
		Option					
4801	R425	LABOR Phase 1 - Task 8 Management, [redacted]	1.0	LO	[redacted]	[redacted]	

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost	Fixed Fee	CPFF
480101	R425	[redacted]01 in the amount of $30,000 (RDT&E)					
480102	R425	[redacted]					
480103	[redacted]	[redacted]					
4802	R425	LABOR Phase 2 - Task 8 Management, Meetings, Deliverables, and Collaboration R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	[redacted]	[redacted]	
480201	R425	[redacted]					
480202	R425	[redacted]					
480203	R425	[redacted]					
4803	R425	LABOR Phase 3 - Task 8 Management, Meetings, Deliverables, and Collaboration R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$[redacted]	[redacted]	[redacted]
480301	R425	[redacted]					
4804	R425	LABOR Phase 4 - Task 8 Management, Meetings, Deliverables, and Collaboration R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$[redacted]	[redacted]	
480401	R425	[redacted]					
480402	R425	[redacted]					
480403	R425	[redacted]					
4805	R425	[redacted]	1.0	LO	$0.00	$0.00	$0.00

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost	Fixed Fee	CPFF
		Option					

For ODC Items:

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost
6101	R425	ODC Phase 1 - Task 1 Digital/ Photonic Techniques Generator R&D Support for NGAEA EC Project in accordance with the attached SOW (RDT&E)	1.0	LO	[redacted]
610101	R425	Incremental funding for CLIN 6101 in [redacted]			
610102	R425	Incremental funding for CLIN [redacted]			
6102	R425	ODC Phase 2 - Task 1 Digital/ Photonic Techniques Generator R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	[redacted]
610201	R425	Incremental funding for CLIN [redacted] (RDT&E)			
610202	R425	Incremental funding for CLIN 6102 in the amount of $0 (RDT&E)			
610203	R425	Incremental funding for CLIN 6102 in the amount of $0 (RDT&E)			
6103	R425	ODC Phase 3 - Task 1 Digital/ Photonic Techniques Generator R&D Support for NGAEA EC Project IAW the attached SOW Phase 3 - ODC (RDT&E)	1.0	LO	[redacted]
610301	R425	[redacted] (RDT&E)			
610302	R425	Incremental funding for CLIN 6103 [redacted]			
6104	R425	ODC Phase 4 - Task 1 Digital/ Photonic Techniques Generator R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	[redacted]
610401	R425	Incremental funding for CLIN [redacted]			
610402	R425	Incremental funding for CLIN [redacted] support of TI004 (RDT&E)			
610403	R425	Incremental funding for CLIN [redacted] support of TI004 (RDT&E)			
6201	R425	LABOR Phase 1 - Task 2 Digital/ Photonic Beamforming R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
6202	R425	ODC Phase 2 - Task 2 Digital/ Photonic Beamforming R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6203	R425	ODC Phase 3 - Task 2 Digital/ Photonic Beamforming R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6204	R425	ODC Phase 4 - Task 2 Digital/ Photonic Beamforming R&D Support for NGAEA EC Project IAW the atttached SOW (RDT&E)	1.0	LO	$0.00

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost
		Option			
6301	R425	ODC Phase 1 - Task 3 RF Power Amplifier Modules R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
6302	R425	ODC Phase 2 - Task 3 RF Power Amplifier Modules R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6303	R425	ODC Phase 3 - Task 3 RF Power Amplifier Modules R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6304	R425	ODC Phase 4 - Task 3 RF Power Amplifier Modules R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6401	R425	ODC Phase 1 - Task 4 Antenna Arrays R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
6402	R425	ODC Phase 2 - Task 4 Antenna Arrays R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6403	R425	ODC Phase 3 - Task 4 Antenna Arrays R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6404	R425	ODC Phase 4 - Task 4 Antenna Arrays R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6501	R425	ODC Phase 1 - Task 5 Low Band Antennas and Amplifiers R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6502	R425	ODC Phase 2 - Task 5 Low Band Antennas and Amplifiers R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6601	R425	ODC - Task 6 Prime Power Generation R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6701	R425	ODC - Task 7 Cooling R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
		Option			
6801	R425	ODC Phase 1 - Task 8 Management, Meetings, Deliverables and Collaboration R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$19,834.00
680101	R425	Incremental funding for CLIN 6801 [redacted]			

Item	PSC	Supplies/Services	Qty	Unit	Est. Cost
680102	R425	Incremental funding for CLIN 6801			
6802	R425	ODC Phase 2 - Task 8 Management, Meetings, Deliverables, and Collaboration R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)			
680201	R425	Incremental funding for CLIN 6802 (RDT&E)			
6803	R425	ODC Phase 3 - Task 8 Management, Meetings, Deliverables, and Collaboration R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)			
680301	R425	Incremental funding for CLIN 6803 (RDT&E)			
6804	R425	ODC Phase 4 - Task 8 Management, Meetings, Deliverables, and Collaboration R&D Support for NGAEA EC Project in accordance with attached SOW (RDT&E)	1.0		
680401	R425	Incremental funding for CLIN			
680402	R425	Incremental funding for CLIN support of TI004 (RDT&E)			
680403	R425	Incremental funding for CLIN			
6805	R425	ODC Task 8 - NRE Support R&D Support for NGAEA EC Project IAW the attached SOW (RDT&E)	1.0	LO	$0.00
		Option			

(1) Task order type will be cost reimbursement plus fixed fee.

(2) Option line items may be exercised from the task order award date through the following period:

Option CLIN	Description	Option Exercise Period
4102		

LIMITATION OF COST OR LIMITATION OF FUNDS LANGUAGE – (5310)

The clause entitled "LIMITATION OF COST" (FAR 52.232 20) or "LIMITATION OF FUNDS" (FAR 52.232 22), as appropriate, shall apply separately and independently to each separately identified estimated cost.

PAYMENTS OF FEE(S) (LEVEL OF EFFORT) (NAVSEA) (MAY 1993) – (5314)

(a) For purposes of this contract, "fee" means "target fee" in cost-plus-incentive-fee type contracts, "base fee" in cost-plus-award-fee type contracts, or "fixed fee" in cost-plus-fixed-fee type contracts for level of effort type contracts.

(b) The Government shall make payments to the Contractor, subject to and in accordance with the clause in this contract entitled "FIXED FEE" (FAR 52.216-8) or "INCENTIVE FEE", (FAR 52.216-10), as applicable. Such payments shall be equal to

percent (%) of the allowable cost of each invoice submitted by and payable to the Contractor pursuant to the clause of this contract entitled "ALLOWABLE COST AND PAYMENT" (FAR 52.216-7), subject to the withholding terms and conditions of the "FIXED FEE" or "INCENTIVE FEE" clause, as applicable (percentage of fee is based on fee dollars divided by estimated cost dollars, including facilities capital cost of money). Total fee(s) paid to the Contractor shall not exceed the fee amount(s) set forth in this contract.

(c) The fee(s) specified in SECTION B, and payment thereof, is subject to adjustment pursuant to paragraph (g) of the special contract requirement entitled "LEVEL OF EFFORT." If the fee(s) is reduced and the reduced fee(s) is less than the sum of all fee payments made to the Contractor under this contract, the Contractor shall repay the excess amount to the Government. If the final adjusted fee exceeds all fee payments made to the contractor under this contract, the Contractor shall be paid the additional amount, subject to the availability of funds. In no event shall the Government be required to pay the Contractor any amount in excess of the funds obligated under this contract at the time of the discontinuance of work.

(d) Fee(s) withheld pursuant to the terms and conditions of this contract shall not be paid until the contract has been modified to reduce the fee(s) in accordance with the "LEVEL OF EFFORT" special contract requirement, or until the Procuring Contracting Officer has advised the paying office in writing that no fee adjustment is required.

TRAVEL COSTS - ALTERNATE I (NAVSEA) (MAY 2000) – (5315)

(a)(1) Except as otherwise provided herein, the Contractor shall be reimbursed for its reasonable actual travel costs in accordance with FAR 31.205-46. The costs to be reimbursed shall be those costs accepted by the cognizant DCAA.

(a)(2) In accordance with Class Deviation 2000-00005, DOD Contractors may choose to use either the FTR rates and definitions for travel, lodging and incidental expenses effective on 31 December 1998 or the current FTR rates and definitions. The Contractor must choose either the 1998 definitions and rates or the current FTR definitions and rates and apply them consistently to all travel while this class deviation, or its successor, is in effect.

(b) Reimbursable travel costs include only that travel performed from the Contractor's facility to the worksite, in and around the worksite, and from the worksite to the Contractor's facility.

(c) Relocation costs and travel costs incident to relocation are allowable to the extent provided in FAR 31.205-35; however, Contracting Officer approval shall be required prior to incurring relocation expenses and travel costs incident to relocation.

(d) The Contractor shall not be reimbursed for the following daily local travel costs:

(i) travel at U.S. Military Installations where Government transportation is available;

(ii) travel performed for personal convenience/errands, including commuting to and from work; and

(iii) travel costs incurred in the replacement of personnel when such replacement is accomplished for the Contractor's or employee's convenience.

SECTION C DESCRIPTIONS AND SPECIFICATIONS

August 7, 2009

Revision: H-ITT

Statement of Work

Next Generation Airborne Electronic Attack
Enabling Capabilities Program

Components Advanced Technology Development & Demonstration Phase

NAVAL SURFACE WARFARE CENTER, CRANE DIVISION
ACQUISITION DIVISION
CODE 0563, BLDG 2035
300 HIGHWAY 361
CRANE, IN 47552-5000

STATEMENT OF WORK

1.0 Scope

The Next Generation Airborne Electronic Attack (NGAEA) Enabling Capability (EC) project is intended to develop component technologies to the required Technology Readiness Level (TRL) to support transition to the Navy Next Generation Jammer (NGJ). NGJ will develop and field stand-off and modified escort support jamming systems, with potential application at the sub-system level to stand-in jamming systems. The components to be developed under NGAEA must support a Modular Open Systems Approach (MOSA) in accordance with Department of Defense guidelines and other NGJ-specific documentation. The work to be conducted under this phase of the NGAEA EC will consist of the following:

(1) Design, fabricate, test and demonstrate high risk, high pay-off component technologies, which if successfully developed will be capable of transition to the NGJ acquisition program and result in an improved system and/or reduced life cycle cost.

(2) Generate and deliver program and technical data documenting designs of breadboard and prototype components, the procedures and results of demonstration testing, the status and design progression during the execution of the efforts, the assessments for TRL and Manufacturing Readiness Level (MRL), and the scope of additional efforts required to incorporate the technologies into the NGJ system design.

(3) Collaboration with contractors performing work under the NGJ Trade Studies Broad Agency

Announcement [Naval Air Systems Command (NAVAIR) Broad Agency Announcement (BAA) No. N00019-08-R-0101], NGJ System prototyping, to be pursued under a future NAVAIR solicitation, and the Air Force Core Components Jammer (CCJ) Technology Maturation and Demonstration (TMD) program.

The Scope of this Statement of Work applies to Seaport-e, N00178-04-R-4000, paragraph 1.3, as support under the contract to other Department of Defense (DoD), non-DoD, or Joint agencies for work that is integrally related to the Warfare Centers product areas and mission. The scope of this Contract will also allow for inclusion of new product areas, programs, or missions assigned to these activities during the life of the contract.

This Task Order applies to the following paragraphs of the basic Seaport Enhanced (Seaport-e) contract.

Seaport-e Paragraph #
3.1. Research and Development Support

This is a performance-based Statement of Work. The contractor is required to effectively manage and execute tasking, including establishing and meeting the cost, schedule and technical performance baselines established at the time of contract award. The government will actively monitor contract performance and immediately notify the contractor of performance concerns. Successful execution of a Task Phase (see Section 4.1) is required in order to receive consideration for award of the next Task Phase Option.

2.0 Applicable Documents

The documents listed below are applicable to the efforts conducted under this SOW and are to be provided as Government Furnished Information no later than 15 days After Receipt of Order (ARO). This list can be found in NAVSEA 4320-2 format in Attachment (1):

Title	Date
Government Documents	
Next Generation Airborne Electronic Attack, EA-18G Air Vehicle Integration Report, Boeing Document #STL2007A0070	**06 Jul 07**
EA-18G Airborne Electronic Attack Performance Specification Version C.1 (SECRET)	**25 Aug 03**
Detailed Performance Specification for the AN/ALQ-99 Universal Exciter Upgrade (UEU) Production Program, AS-5697 (inclusive of specification change notices (SCN) 1-6 (SECRET)	**10 Sep 96** **Jan 02**
ALQ-99 UEU Users Guide (SECRET)	**14 Oct 02/Rev2**
EA-18G Baseline Performance Definition Document, OPNAV Ltr Ser no N780C3/U632381	**29 Sep 03**
Modular Open Systems Approach Program Managers Guide, Sep 04 Version 2.0	
NGJ System Capabilities, Version 1.0 (SECRET)	**02 Sep 08**
Contractor Documents	

NGAEA Phase 0 Study Final Reports (SECRET) (non-proprietary portions) **TBD**

3.0 Background

3.1 Next Generation Airborne Electronic Attack (NGAEA) is an Office of Naval Research (ONR) managed Enabling Capability (EC) project (EC No. STK-08-04) intended to develop and transition high pay-off technologies which could result in a more effective, reliable and affordable NGJ for the U.S. Navy. NGJ is a prospective Acquisition Category I program managed by the Program Executive Officer for Tactical Aircraft (PEO-T), AEA/EA-6B Program Office, PMA-234. NGJ will be the Navy's primary weapons system used to conduct Airborne Electronic Attack (AEA) and is targeted for Initial Operational Capability (IOC) on the Navy EA-18G Growler in the year 2018. In late 2007, the NGAEA EC contracted with multiple companies for the development of initial NGJ system concepts, the identification of critical and enabling technologies needed to support these system concepts, and the development of initial recommendations for technology maturation needed to bring about these technologies. This "Phase 0" effort served as the baseline for the component advanced technology development work to be completed across the 2009 through 2012 time frame.

3.2 As stated in Section 3.1, the focus of the NGAEA EC is advanced technology development of components that offer high pay-off potential for use in an eventual NGJ system. This high pay-off will be realized if advanced component designs can be matured to TRL 6 and incorporated into the NGJ system design either during its System Development and Demonstration phase or as technology insertions occurring after the NGJ IOC. To justify the additional engineering work required to incorporate the advanced component designs, they must offer a significant pay-off in one or more of the following attributes: (1) performance (including reliability); (2) Size, Weight and Power consumption (SWaP); and (3) life cycle cost (including manufacturing). Additionally, the design of advanced components must be carefully integrated with the development and demonstration of NGJ system prototype designs, which will be accomplished by PMA-234 during the NGJ Technology Development (TD) phase. Designs for candidate component technologies to be developed under NGAEA must be capable of insertion into and integration with NGJ system designs with minimal impacts to NGJ sub-system and system level designs and interfaces.

3.3 For the purposes of the NGAEA EC, a "component" is considered to be a Shop Replaceable Assembly (SRA) (i.e module, card) and a "sub-system" is considered to be a Weapons Replaceable Assembly (WRA) (i.e. avionics "box"). WRA is the generic term that includes all replaceable boxes that comprise the weapons systems as it is installed in the aircraft weapons system. The WRA is composed entirely of SRAs, which are all the packages in the WRA. An SRA may be made of other SRAs, sometimes call Sub-SRAs, or SSRA. The terms "WRA" and "SRA" are synonymous with the terms "Line Replaceable Unit (LRU)" and "Shop Replaceable Unit (SRU)", respectively.

3.4 It is envisioned that high pay-off components will initially be at a TRL ranging between 3 and 4 at the start of advanced technology development and must be capable of maturation to TRL 6 by December 2012 and within the funding constraints of the NGAEA EC. For the purposes of this effort, TRL 6 is defined as the development and demonstration of a form, fit and function prototype in a relevant environment. A relevant environment is that which simulates the electrical and mechanical interfaces to the component, its installation in a next-higher assembly and the environmental conditions in which it must operate. Figure 1 provides additional TRL information.

3.5 Since no system design exists at this point, the Navy provides the NGJ System Capabilities as the guiding document to establish the component technology needs and potential levels of performance. Releasable documentation developed under NGAEA Phase 0 shall also be considered as guiding documents for technology development work conducted under NGAEA and NGJ TD.

Figure 1 - TRL Definitions and Program Allocation

3.6 For the purposes of this SOW, the sub-systems for NGJ are considered to those given below. Component technologies that enable the sub-systems described in Sections 3.6.1 through 3.6.4 are the primary focus of the NGAEA EC. Sections 4.2 through 4.6 specify technology development tasks that support these sub-systems.

3.6.1 Exciters (EXTR): A sub-system or set of sub-systems that generate jamming modulations, which when formed into beams, amplified and radiated, result in effective jamming. The EXTR sub-system(s) must be capable of generating both simultaneous and time multiplexed jamming modulations in the appropriate quantities and with the necessary parameters (i.e. techniques) needed to ensure effective system-level jamming. The required number of unique EXTR sub-systems, and the SWaP required for each EXTR sub-system shall be minimized. The EXTR sub-system(s) must integrate with or interface to the BF sub-systems. The EXTR sub-system(s) support the system-level interoperability requirements. Thermal design and system-level cooli interface conditions for the EXTR sub-system(s) must be realistic and reflect an achievable allocation of an overall NGJ System thermal analysis. The reliability of the EXTR sub-system(s must be maximized, while minimizing manufacturing difficulty and life cycle cost.

3.6.2 Beam Formers (BF): A sub-system or set of sub-systems that accept, distribute and manipulate jamming modulations generated by the Exciter sub-system(s) in order to form and control the beams radiated by the Antennas & Antenna Arrays (AAA) sub-systems. The BF sub-system(s) n have the capacity to form and control the required number of beams to ensure effective jammin The BF shall support both the simultaneous and time multiplexed formation of multiple beams antenna array and must ensure beam parameters are maintained for jamming modulations wit wide variations in technique type, frequency, and duty cycle. The required number of unique BF sub-systems, and the SWaP required for each BF sub-system shall be minimized. The BF sub-system(s) must integrate with or interface to the RFPA and the Exciter sub-systems. The BF sub-system(s) must support the system-level interoperability requirements. Thermal design an system-level cooling interface conditions for the BF sub-system(s) must be realistic and reflect achievable allocation of an overall NGJ System thermal analysis. The reliability of the BF sub-system(s) must be maximized, while minimizing manufacturing difficulty and life cycle co

3.6.3 Radio Frequency (RF) Power Amplifiers (RFPA): A set of sub-systems that receive and amplify jamming modulations generated by the Exciter(s). The RFPA(s) must provide the required amou power output (P_{out}) needed by the antenna arrays in order to result in the amount of Effective Radiated Power (ERP) required to provide effective jamming. The RFPA sub-system(s) must inte with or interface to the Antenna Array and the Beam Former sub-system(s). The P_{out} required s be achieved while prime power efficiency of the RFPA is maximized and thermal dissipation an spurious/harmonic content are minimized. The P_{out} of the RFPAs should be controllable to supp training and minimize interoperability issues. Thermal design and system-level cooling interf conditions for the RFPA sub-system(s) must be realistic and reflect an achievable allocation of a overall NGJ System thermal analysis. The reliability of the RFPA(s) sub-system(s) must be maximized, while minimizing SWaP, manufacturing difficulty and life cycle cost.

3.6.4 Antennas & Antenna Arrays (AAA): A set of sub-systems that form and radiate to free-space beams of RF energy, which result in effective jamming. The AAA sub-systems must have suffici gain to ensure effective jamming over a range of beamwidths, beam steering positions (azimuth elevation), beam steering rates, polarizations, and polarization switching rates. The azimuth a elevation ranges over which the arrays must form and steer beams, the number of beams forme each array and the number of arrays needed to provide the required field of regard must suppor system level requirements while minimizing system complexity. The required number of uniqu AAA sub-systems, the SWaP required, and the side/back lobe levels of gain shall be minimized. AAA sub-systems must integrate with or interface to with the RFPA sub-system(s). The AAA sub-systems must support the system-level interoperability requirements. Thermal design and system-level cooling interface conditions for the AAA sub-systems must be realistic and reflect achievable allocation of an overall NGJ System thermal analysis. The reliability of the AAA sub-systems must be maximized, while minimizing manufacturing difficulty and life cycle cost

4.0 Component Advanced Technology Tasks

4.1 Task Structure: There are five component development Tasks (1 through 5) identified in Sections 4.2 through 4.6 below. Each Task shall involve a four phase process of development which includes the following: (1) Phase 1 - Initial component design; (2) Phase 2 - Fabrication, testing and TRL 4 demonstration of a component breadboard; (3) Phase 3 – Final component design; and (4) Phase 4 – Fabrication, testing and demonstration of a TRL 6 component prototype. For each component development Task performed, the contractor shall perform the Management, Meetings & Deliverables (MMD), Task 8, defined in Section 4.7 and its subsidiary sections. If a contractor performs more than one component development Task, the MM&D tasks for each component development may be combined. Phases 1 and 3 will culminate in a Design Readiness Review (DRR), described in Section 4.7.2.3. Phase 2 and 4 will culminate in a TRL Demonstration, described in Section 4.7.2.4. The periods of performance for each Task are identified in Sections 4.2 through 4.6. Key personnel executing the work effort shall not differ from that proposed without Government authorization.

4.2 Task 1 – Digital/Photonic Techniques Generator - Using the 4-phase process identified in Section 4.1, the contractor shall develop a MOSA-compliant component or grouping of components capable of generating the complex waveforms that represent the jamming "techniques" identified in the ALQ-99 UEU Users Guide and the NGJ System Capabilities document. The NGJ System Capabilities document provides additional system-level performance objectives that flow down to the techniques generator (a.k.a "exciter) component(s). In order to generate the required number of simultaneous and time-commutated jamming assignments at the system level, the component(s) must be packaged as a modular building block capable of "xN" replication (multiple SRAs) and integration at the sub-system level ("N" representing the total number of assignments at the system level). The component(s) must be capable of integration in an NGJ system design and improve Exciter sub-system performance, including interoperability, reduce SWaP, and/or reduce life cycle cost over that possible with available (TRL ³6) technologies. The component(s) should support system architectures that either federate or integrate functions at the sub-system level (i.e. stand-alone exciter or exciter function integrated into arrays). The targeted technologies for this Task are a full band direct digital synthesizer or an RF photonics based arbitrary waveform generator. Hybrid approaches that combine these two technologies together or with other technologies are valid. The objective is to develop a component(s) capable of contiguous operation across the full NGJ frequency range (ALQ-99 Bands 0-10), with a 33% reduction in size, weight and life cycle cost over available technologies. The period of performance of this Task shall not exceed 37 months and shall begin at the time of Task Order award.

4.3 Task 2 – Digital/Photonic Beamformer – Task 2 not awarded.

4.4 Task 3 – RF Power Amplifier Modules (PAM) – Task 3 not awarded.

4.5 Task 4 – Antenna Arrays – Task 4 not awarded.

4.6 Task 5 – Low Band Antennas and Amplifiers – Task 5 not awarded.

4.7 Task 8 - Management, Meetings, Deliverables & Collaboration

4.7.1 Management

4.7.2 Task Manager – The contractor shall assign a Task Manager, responsible for leadership, plannin staffing, execution, and reporting. This Task Manager shall be the primary representative responsible for communications with the government.

4.7.3 Monthly Reports - The contractor shall provide a monthly status report that documents overall project status, technical accomplishments, summation of significant discussions or meetings with the government or other companies, and status of action items and issues (CDRL A004). The contractor shall provide a monthly funds and man-hour expenditure report (CDRL A005). This report shall include the funds expenditure and man-hour execution plan for the Task and identify

monthly and cumulative actual expenditures and man-hours used versus the plan. The contracto shall provide a quarterly Contract Funds Status Report (CDRL A007).

4.7.4 Task Schedule - The contractor shall deliver an Integrated Project Schedule (IPS) that delineate the plan for accomplishment of the Task. The schedule shall be provided within 30 days After Receipt of Order (ARO) (CDRL A006). The contractor shall submit updates to the schedule on a monthly basis thereafter, concurrent with the monthly progress report.

4.7.5 Security Requirements - The contractor shall implement a security program to accomplish the tasks defined in this SOW in accordance with the contract requirements.

4.7.6 Meetings

4.7.6.1 Post Award Conference (PAC) - The contractor shall conduct a PAC, no later than 15 days ARO, a date, time and location mutually agreeable with the government. The contractor shall develop an submit an agenda (CDRL A008) in advance of the PAC and afterward provide meeting minutes (CDRL A009) and all presentation materials (CDRL A010). The duration of the PAC will not exce 1 workday. During the PAC, the contractor must discuss, at minimum, the following topics:

- **Corporate overview of company, including all partners and subcontractors**
- **Management and staffing**
- **Work Breakdown Structure (WBS)**
- **Integrated Project Schedule (IPS) with emphasis on major efforts/events for next quarter**
- **Budget, labor, material and other costs per WBS item (Financial plan)**
- **Technical review of proposed Task(s)**
- **Hardware & software configurations**
- **Cost, Schedule and Performance Metrics**
- **Applicable TRL definitions and assessment criteria**
- **Identified risks and risk management plan**
- **Contract issues, including Government Furnished Information (GFI) and Equipment (GFE)**
- **Related/relevant work (e.g. Core Component Jammer, NGJ TD, IR&D, applicable Government-funded R&D)**
- **Action items**

Other items agreed upon by the contractor and the government

4.7.6.2 Program Management Reviews (PMR)/Technical Interchange Meetings (TIM) – The contractor sh conduct quarterly PMR/TIM meetings on dates and at location mutually agreeable with the government. The contractor shall develop and submit an agenda (CDRL A008) in advance of the PMR/TIM and afterward provide meeting minutes (CDRL A009) and all presentation materials (CDRL A010). The duration of the PMR/TIM will not exceed 1 workday. During the PMR/TIM, the contractor must discuss, at minimum, the following topics:

- **Contract issues, including Government Furnished Information (GFI) and Equipment (GFE)**
- **Applicable corporate changes, including all partners and subcontractors**
- **Management and staffing changes**
- **Financial plan/status**
- **Review of Task(s) technical steps**
- **Hardware/software configurations, including description of sub-components, piece parts, packagi thermal analysis, and software modules**
- **Accomplishments since last meeting**
- **Modeling & simulation results/plans**
- **Testing results/plans**
- **Laboratory and Relevant environments definition process**
- **DRR entry and exit criteria**
- **TRL assessment**
- **Identified risks and risk management plan update and status**
- **Data items list and review of data deliverables**
- **Identification of scope of additional effort beyond NGAEA to incorporate advanced components in**

NGJ system design

- **Related/relevant work (e.g. Core Component Jammer, NGJ TD, IR&D, applicable Government-funded R&D)**
- **Cost, Schedule and Performance Metrics status**
- **WBS & IPS review/status with emphasis on major efforts/events for next quarter**
- **Other items agreed upon by the contractor and the government**
- **Action item review**

4.7.6.3 Design Readiness Review (DRR) - The contractor shall conduct a DRR at the completion of Phase and 3 for the Task(s). The DRR meeting date and location shall be mutually agreeable with the government. The DRR determines the readiness to enter into the Fabrication, testing and demonstration phase for the TRL 4 breadboard (Phase 2) and the TRL 6 prototype (Phase 4). The contractor shall develop and submit an agenda (CDRL A008) in advance of the DRR and afterward provide meeting minutes (CDRL A009) and all presentation materials (CDRL A010). The duratio of the DRR will not exceed 1 workday and should be aligned to occur in conjunction with a quarte PMR/TIM. During the DRR, the contractor must discuss, at minimum, the following topics:

- **DRR entry and exit criteria**
- **Component design overview, including identified of off-the-shelf (COTS, GOTS) items**
- **Electrical design**
  - **Schematic**
  - **Digital/Analog/Photonic/Optical/RF/Hybrid**
- **Mechanical design**
  - **Packaging/layout/integration**
  - **SWaP**
  - **Thermal**
  - **Environmental design**
- **Thermal design**
  - **Thermal management concept**
  - **Thermal analysis, including worst case operating temperature**
  - **Thermal packaging design from heat source to cold plate (or equivalent)**
  - **Assumptions and material parameters/properties**
- **Software design**
  - **Development environment**
  - **Modules/Layers**
  - **Coding**
  - **Integration**
- **Reliability**
- **Fabrication process**
- **Manufacturing**
- **Modeling & simulation results/plans**
- **Testing results/plans**
- **TRL Demonstration description**
- **Laboratory and Relevant environments**
- **Performance Metrics status**
- **Unit cost assessment**
- **Sub-component, piece part of equipment procurements**
- **DRR exit criteria and action item review**
- **Other items agreed upon by the contractor and the government**

4.7.6.4 TRL Demonstration - The contractor shall conduct a TRL demonstration at the completion of Phases 2 and 4 for the Task(s). The purpose of the demonstration is to prove the achievement of T 4 (Phase 2) and TRL 6 (Phase 4) of the component developed under the Task. The demonstration dates shall be mutually agreeable with the government. The location of the demonstrations will b at the contractor's facility. The contractor shall develop and submit an agenda (CDRL A008) in advance of the demonstrations and afterward provide meeting minutes (CDRL A009) and any presentation materials (CDRL A010). The demonstrations shall be conducted in accordance with government-approved demonstration plans (CDRL A011). After completion of the demonstration,

the contractor shall document the result in a government-approved demonstration report (CDRL A012). The duration of the demonstration will not exceed 1 workday and, if possible, should be aligned to occur in either in conjunction with a quarterly PMR/TIM or other demonstration event or DRRs, the latter two assuming the contractor is performing more than one Task.

4.7.7 Deliverables – The deliverables for the NGAEA EC are program are technical data documenting designs of breadboard and prototype components, the procedures and results of demonstration testing, the status and design progression during the execution of the efforts, the assessments for TRL and Manufacturing Readiness Level (MRL), and the scope of additional efforts required to incorporate the technologies into the NGJ system design.

4.7.7.1 Final Technical Report - The Contractor shall prepare and submit a final technical report at the conclusion of Phase 4 (CDRL A001). The final technical report shall document the following:

- **Executive summary of the Task, the high pay-off potential if incorporated into an NGJ system, th Task execution plan, Task results, and outline recommendations for future work to successfully transition the component to NGJ.**
- **Detailed descriptions of those items summarized in the Executive Summary**
- **Discussion of the technologies contained within the component and the performance metrics established to determine success**
- **TRL assessments at the start and completion of the Task, including supporting rationale for assessments**
- **Description of the breadboard and prototype component designs, fabrication processes and testin**
- **Description of the laboratory and relevant environments defined and simulated for the demonstrations**
- **Test results, including any reasons for non-success or better than expected results**
- **Reliability of the component and any additional measures needed to improve**
- **Cost and manufacturing of the component, including discussion of "market" (i.e. commercial, other military) demand for component, effect of quantity on cost (cost/unit), an MRL assessment, and any recommendations for Manufacturing Technology efforts**

4.7.7.2 Interface Control Document – The contractor shall prepare and submit an Interface Control Document (ICD) for each component (i.e. Task) developed under this contract (CDRL A002. The I shall define the following:

- **Mechanical interfaces**
  - **v External Dimensions/Shape, including CAD files where available**
  - **v Weight**
  - **v Center of gravity**
  - **v Coolant connections**
  - **v Coolant types, required input conditions (temperature, material phase, absolute pressure, etc. rates, and required differential pressures in the form of operating curves**
  - **v Baseplate connections and temperature requirements over the range of operation including associated subcomponent thermal dissipation values**
  - **v Net thermal load, thermal interface area and maximum interface heat transfer coefficient (wh applicable) for each component technology**
- **Electrical interfaces**
  - **v Inputs/Outputs (I/O) connectors & pin designations**
  - **v I/O signal parameters**
  - **v Prime power requirements**
  - **v Interface standards (i.e. MIL-STD-1553, cPCI, etc)**
- **Software interfaces**
  - **v Message sets**
  - **v Timing diagrams**
- **Environmental qualifications**
  - **v Temperature (operating/non-operating)**
  - **v Vibration (operating/non-operating)**
  - **v Altitude**

4.7.7.3 Technology Transition Plan – The Contractor shall prepare and submit a transition plan identify a comprehensive process for technology insertion of the developed components into NGJ at the conclusion of Phase 4 (CDRL A003). The NGJ Transition Plan shall document the following:

- **Survey of best obtainable NGJ system interface, performance and reliability requirements**
- **Itemization of required component modifications and additional interface hardware required to meet obtained NGJ system requirements**
- **Technology transition agreements**
- **Detailed description of additional Non-Recurring Engineering required to mature the componen to TRL 8**
- **Detailed description of sub-system and/or system level modifications required to incorporate the component(s) and a recommended plan for effecting the system design change and/or retrofit**
- **Itemization of applicable component intellectual property, ownership and best known origin (Government, mixed-funds, IR&D, COTS, Foreign or Domestic) relevant to component supportability in an NGJ system**
- **Itemization of sources of supply for component materials, hardware and any other applicable logistics items required to support component hardware**
- **Estimates of Cost and Schedule of resulting technology transition plan**
- **All additional component information pertinent to component insertion into NGJ over the life cycle of the product**

4.7.8 Data Requirements - The Contractor shall deliver the data identified in accordance with the CDRLs, further defined in the associated DD FORM 1423-2. The data items for this effort are:

- **A001 – Technical Report, Final**
- **A002 – Interface Control Document (one for each proposed task's respective component)**
- **A003 – NGJ Technology Transition Plan**
- **A004 - Status Report (Monthly)**
- **A005 - Funds and Man Hour Expenditure Report (Monthly)**
- **A006 – Project Schedule (Monthly)**
- **A007 - Contract Funds Status Report (Quarterly)**
- **A008 - Agenda (All meetings and demonstrations)**
- **A009 - Meeting minutes (All meetings and demonstrations)**
- **A010 - Presentation Materials (All meetings and demonstrations)**
- **A011 - Test Plans (Phase 2 and 4 demonstrations)**
- **A012 - Test Reports (Phase 2 and 4 demonstrations)**

4.8 Security Requirements - The contractor shall implement a security program to accomplish the tasks defined in this SOW IAW the contract requirements.

4.9 Transition Non-Recurring Engineering – No Transition Non-Recurring Engineering is awarded.

4.10 Collaboration - The contractor shall execute the requisite proprietary information agreements and formally collaborate with contractors performing NGJ Trade Studies, under NAVAIR BAA No. N00019-08-R-0101, contractors performing NGJ system prototype developments under a future NAVAIR solicitation, and contractors executing contracts under the Air Force CCJ TMD program. The goal of this collaboration is threefold. For the NGJ Trade Studies, it is to ensure the development of TRL 4 and 6 advanced component demonstrators capable of integration into NGJ system designs and achieving improved performance and/or reduced system cost, size, weight and required prime power. For the NGJ system prototype development, it is to ensure that competing contractor teams have access to the technical design details, performance capabilities, and known technical and program issues associated with the component technology developments conducted under NGAEA. For the CCJ TMD program, it is to ensure unnecessary duplication of effort for component development is minimized, while commonality between Services is maximized. Contractors performing NGAEA tasks are required to provide equal access to program and technical data for contractors performing NGJ trade studies and system prototyping. If this equal access cannot be provided due to NGAEA, NGJ or CCJ partnering arrangements or due to proprietary

information restrictions, a disclaimer with the supporting explanation must be provided prior to NGAEA task award.

4.11 Task Combination – In the event that multiple Tasks are awarded, and if approved by the Procuring Contracting Officer, the contractor may combine the efforts to be conducted under each Task if doing so provides a superior technical or program management approach over that of conducting the Tasks independently.

4.12 Task Order Manager (TOM)

[redacted]

CLAUSES INCORPORATED BY FULL TEXT

INFORMATION AND DATA FURNISHED BY THE GOVERNMENT (COST TYPE) – ALTERNATE I (NAVSEA) (JAN 2008)

(a) Contract Specifications. The Government will furnish, if not included as an attachment to the contract, any unique contract specifications set forth in Section C.

(b) Contract Drawings and Data. The Government will furnish contract drawings, design agent drawings, ship construction drawings, and/or other design or alteration data cited or referenced in Section C or in the contract specification as mandatory for use or for contract guidance.

(c) Government Furnished Information (GFI). GFI is defined as that information essential for the installation, test, operation, and interface support of all Government Furnished Material enumerated on NAVSEA Form 4205/19 or Schedule A, as applicable, attached to the contract. The Government shall furnish only the GFI identified on the NAVSEA Form 4340/2 or Schedule C, as applicable, attached to the contract. The GFI furnished to the contractor need not be in any particular format. Further, the Government reserves the right to revise the listing of GFI on the NAVSEA Form 4340/2 or Schedule C, as applicable, as follows:

(1) The Contracting Officer may at any time by written order:

(i) delete, supersede, or revise, in whole or in part, data listed or specifically referenced in NAVSEA Form 4340/2 or Schedule C, as applicable; or

(ii) add items of data or information to NAVSEA Form 4340/2 or Schedule C, as applicable; or

(iii) establish or revise due dates for items of data or information in NAVSEA Form 4340/2 or Schedule C, as applicable.

(2) If any action taken by the Contracting Officer pursuant to subparagraph (1) immediately above causes an increase or decrease in the costs of, or the time required for, performance of any part of the work under this contract, the contractor may be entitled to an equitable adjustment in the contract amount and delivery schedule in accordance with the procedures provided for in the clause of this contract entitled "CHANGES--COST-REIMBURSEMENT" (FAR 52.243-2) or "CHANGES--TIME-AND-MATERIALS OR LABOR-HOURS" (FAR 52.243-3).

(d) Except for the Government information and data specified by paragraphs (a), (b), and (c) above, the Government will not be obligated to furnish the Contractor any specification, standard, drawing, technical documentation, or other publication, notwithstanding anything to the contrary in the contract specifications, the GFI listed on the NAVSEA Form 4340/2 or Schedule C, as applicable, the clause of this contract entitled "GOVERNMENT PROPERTY" (FAR 52.245-1) or "GOVERNMENT PROPERTY INSTALLATION OPERATION SERVICES " (FAR 52.245-2), as applicable, or any other term or condition of this contract.

(e) Referenced Documentation. The Government will not be obligated to furnish Government specifications and standards, including Navy standard and type drawings and other technical documentation, which are referenced directly or indirectly in the contract specifications set forth in Section C and which are applicable to this contract as specifications. Such referenced documentation may be obtained:

(1) From the ASSIST database via the internet at http://assist.daps.dla.mil/; or

(2) By submitting a request to the

Department of Defense Single Stock Point (DoDSSP)
Building 4, Section D
700 Robbins Avenue
Philadelphia, Pennsylvania 19111-5094
Telephone (215) 697-2179
Facsimile (215) 697-1462.

Commercial specifications and standards, which may be referenced in the contract specification or any sub-tier specification or standard, are not available from Government sources and should be obtained from the publishers.

NOTES
These requirements do not apply with respect to nuclear propulsion plant systems and other matters under the technical cognizance of the Deputy Commander, Nuclear Propulsion Directorate, Naval Sea Systems Command.

SECTION D PACKAGING AND MARKING

All provisions and clauses in SECTION D of the basic contract apply to this task order, unless otherwise specified in this task order.

DATA PACKAGING LANGUAGE
All unclassified data shall be prepared for shipment in accordancewith best commercial practice. Classified reports, data, and documentation shall be prepared for shipment in accordance with National Industrial Security Program Operating Manual (NISPOM), DOD 5220.22-M dated January 1995.

MARKING OF REPORTS (NAVSEA) (SEP 1990)
All reports delivered by the Contractor to the Government under this contract shall prominently show on the cover of the report:

(1) name and business address of the Contractor
(2) contract number
(3) task order number
(4) sponsor: _____
(Name of Individual Sponsor)

_____
(Name of Requiring Activity)

_____
(City and State)

PROHIBITED PACKING MATERIALS
The use of asbestos, excelsior, newspaper or shredded paper (all types including waxed paper, computer paper and similar hygroscopic or non neutral material) is prohibited. In addition, loose fill polystyrene is prohibited for shipboard use.

INSTRUCTIONS FOR MARKING DISTRIBUTION STATEMENT
The Contractor shall comply with the instructions cited below for placement of the distribution statement associated with data. The applicable distribution statement is identified on each Contract Data Requirements List(DD Form 1423-1). The distribution statement shall be displayed conspicuously on technical documents so as to be recognized readily by receipts.

The distribution statement shall appear on each front cover and title page of a report. If the technical document does not have a cover or title page, the applicable distribution statement shall be stamped or typed on the front page in a conspicuous position.

SECTION E INSPECTION AND ACCEPTANCE

All provisions and clauses in SECTION E of the basic contract apply to this task order, unless otherwise specified in this task order.

INSPECTION AND ACCEPTANCE TERMS
Supplies/services will be inspected/accepted at DESTINATION.

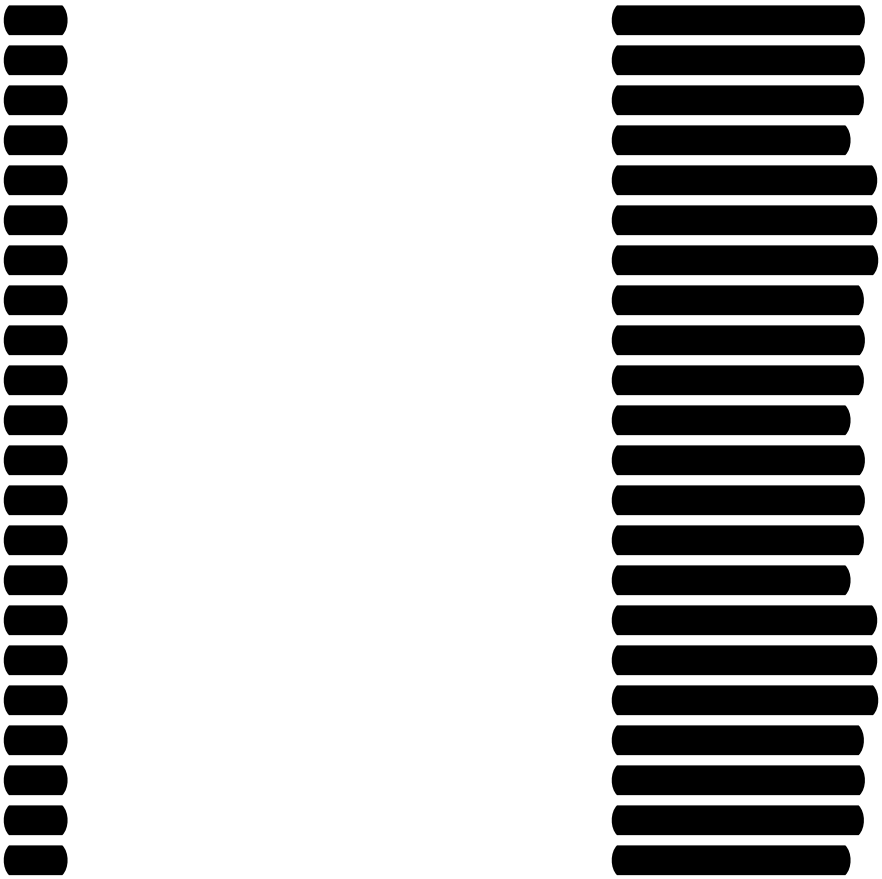
INSPECTION AND ACCEPTANCE LANGUAGE FOR DATA (5602)
Inspection and acceptance of all data shall be as specified on the attached Contract Data Requirements List(s), DD Form 1423.

CLAUSES INCORPORATED BY REFERENCE

52.246-8 Inspection of Research and Development - Cost-Reimbursement (MAY 2001)
252.246-7000 Material Inspection and Receiving Report (MARCH 2003)

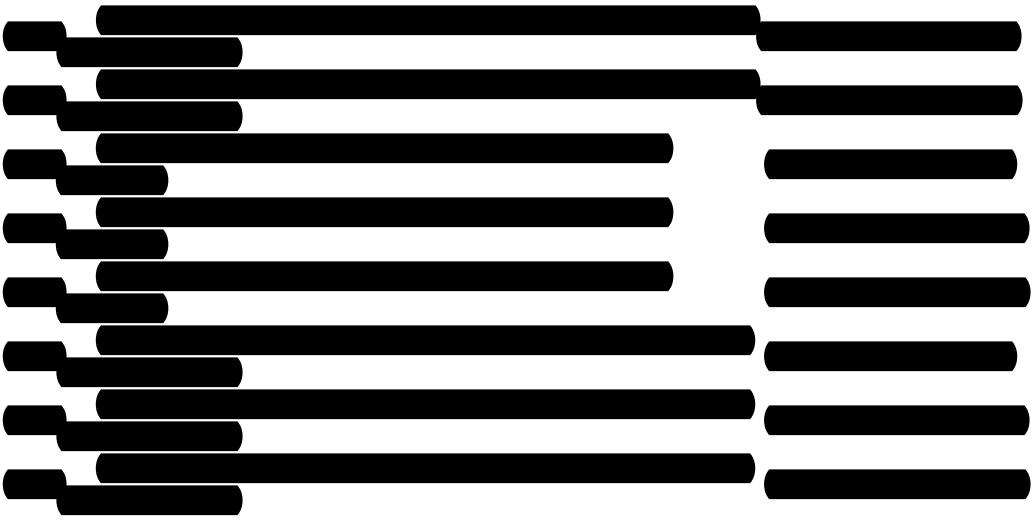
SECTION F DELIVERABLES OR PERFORMANCE

The periods of performance for the following Items are as follows:



The periods of performance for the following firm items are estimated at:

The periods of performance for the following Option line items are estimated at:



CLAUSES INCORPORATED BY REFERENCE

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

DATA DELIVERY LANGUAGE FOR SERVICES PROCUREMENTS (5703)
All data to be furnished under this contract shall be delivered prepaid to destination(s) at the time(s) specified on the Contract Data Requirements List(s), DD Form 1423.

TIME OF PERFORMANCE (SERVICES) (5711)
Research and Development to be furnished under this task order shall be performed and completed within 365 days from the effective date of the task order. The time of performance may be extended by written modification to exercise Option CLINs under the task order(s) as provided for elsewhere herein.

SECTION G CONTRACT ADMINISTRATION DATA

All provisions and clauses in SECTION G of the basic contract apply to this task order, unless otherwise specified in this task order.

SECURITY ADMINISTRATION

The highest level of security required under this task order is SECRET as designated on DD Form 254 attached hereto and made a part hereof. The Commander, Defense Security Service, Director of Industrial Security, Western Region, is designated Security Administrator for the purpose of administering all elements of military security hereunder.

TASK ORDER MANAGER (TOM)

[redacted]

INVOICING INSTRUCTIONS AND PAYMENT FOR SERVICES

Invoices for services rendered under this Contract shall be submitted electronically through Wide Area Work Flow – Receipt and Acceptance (WAWF): The vendor shall self-register at the web site https://wawf.eb.mil. Vendor training is available on the internet at https://wawftraining.eb.mil. Additional support can be accessed by calling the NAVY WAWF Assistance Line: 1-800-559-WAWF (9293).Select the Cost Voucher within WAWF as the invoice type. The cost voucher prepares the interim voucher. Back up documentation (such as timesheets, cost breakdowns, etc.) can be included and attached to the invoice in WAWF. Attachments created in any Microsoft Office product are attachable to the invoice in WAWF.

The following information regarding Naval Surface Warfare Center, Crane, Indiana is provided for completion of the invoice in WAWF:

PAY DODAAC:	HQ0339
WAWF Invoice Type:	Cost Voucher
Issue by DODAAC:	N00164
Admin DODAAC:	S0602A
DCAA DODAAC (if applicable):	HAA061
Service Approver:	N00164
Inspect by DODAAC:	N/A
Service Acceptor DODAAC:	N00164
LPO DODAAC:	N/A

The contractor shall submit invoices for payment per contract terms.
The contractor shall invoice per ACRN by SLIN (sub-contract line item number).

The Government shall process invoices for payment per contract terms. Payment is not to be pro-rated across ACRNs. ACRNs are to be paid in accordance with contractor's invoice. After clicking the submit button a Notice or successful/unsuccessful submission screen will appear. This screen allows you to enter an additional e-mail notification address. You must click on the “Send More E-mail Notifications” link and add the e-mail address listed below for submittal of the acceptor:

Or e-mail the invoice to the following address:

[redacted]

[redacted]

[redacted]

Additional WAWF Information:

On the Miscellaneous Tab of the invoice in WAWF attach the cost breakdown (SF 1035) for the cost voucher amount being submitted IAW the invoicing instructions.

CONTRACT ADMINISTRATION DATA LANGUAGE (5802)

Enter below the address (street and number, city, county, state and zip code) of the Contractor's facility which will administer the task order if such address is different from the address shown on the proposal.

Address:_____

Street & number:_____

City & State:_____

County:_____

Zip Code:_____

CONTRACTOR PERFORMANCE ASSESSMENT RATING SYSTEM (CPARS) (JAN 2001)

(a) Pursuant to FAR 42.1502, this task order is subject to DoD's Contractor Performance Assessment Rating System (CPARS). CPARS is an automated centralized information system accessible via the Internet that maintains reports of contractor performance for each contract/task order. CPARS is located at http://www.cpars.navy.mil/. Further information on CPARS is available at that web-site.

(b) Under CPARS, the Government will conduct annual evaluations of the contractor's performance. The contractor has thirty (30) days after the Government's evaluation is completed to comment on the evaluation. The opportunity to review and comment is limited to this time period and will not be extended. Failure to review the report at this time will not prevent the Government from using the report.

(c) The contractor may request a meeting to discuss the CPAR. The meeting is to be requested via e-mail to the CPARS Program Manager no later than seven days following receipt of the CPAR. A meeting will then be held during the contractor's 30-day review period.

(d) The CPARS system requires the Government to assign the contractor a UserID and password in order to view and comment on the evaluation. Provide the name(s) of at least one individual (not more than three) that will be assigned as your Defense Contractor Representative for CPARS. Name, Phone, E-mail Address.

PURCHASING OFFICE REPRESENTATIVE LANGUAGE

PURCHASING OFFICE REPRESENTATIVE:

[redacted]

EXPEDITING CONTRACT CLOSEOUT (NAVSEA) (DEC 1995)

(a) As part of the negotiated fixed price or total estimated amount of this contract, both the Government and the Contractor have agreed to waive any entitlement that otherwise might accrue to either party in any residual dollar amount of $500 or less at the time of final contract closeout. The term "residual dollar amount" shall include all money that would otherwise be owed to either part at the end of the contract except that, amounts connected in any way with taxation, allegations of fraud and/or antitrust violations shall be excluded. For purposes of determining residual dollar amounts, offsets of money owed by one party against money that would otherwise be paid by that party may be considered to the extent permitted by law.

(b) This agreement to waive entitlement to residual dollar amounts has been considered by both parties. It is agreed that the administrative costs for either part associated with collected such small dollar amounts could exceed the amount to be recovered.

Accounting Data

SLINID	PR Number	Amount

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

SECTION H SPECIAL CONTRACT REQUIREMENTS

MANDATORY REQUIREMENTS

The following are mandatory requirements that must be met for an offeror to be considered eligible for the order and must be maintained through the life of the order:

1. The contractor(s) supporting this requirement must have or be eligible to obtain a facility clearance and storage capability up to the SECRET level for both processing and storage.

[redacted]

3. Assertion of Data Rights - Offerors shall provide assertions to restrict use, release or disclosure of data and/or computer software that will be provided in the course of contract performance in accordance with the rules governing these assertions as prescribed in Defense Federal Acquisition Regulation Supplement (DFARS) clauses 252.227-7013, -7014 and -7017.

4. Organizational Conflict of Interest (OCI) - The contractor must either certify that neither nor his proposed subcontractors have an OCI or must have submitted an OCI Mitigation Plan that the Contracting Officer has evaluated as acceptable.

EXCLUSIVE TEAMING ARRANGEMENTS WHICH INHIBIT COMPETITION

Offerors who propose teaming arrangements on an exclusive basis will be evaluated to determine whether such teaming arrangements inhibit competition. In order for the Government to evaluate whether the proposed agreements inhibit competition, offerors are required to (1) provide a copy of all exclusive teaming arrangements, and (2) explain why the teaming arrangements do not inhibit competition. The documentation must include, but is not limited to: structure of the teaming arrangement, responsibilities, and liabilities; financial responsibility; managerial responsibility and accountability; and applicable legal documents. The burden of proving that any exclusive teaming arrangement proposed does not restrict competition shall rest with the offeror. Offerors are advised that should the Government determine that any such proposed, exclusive teaming arrangement inhibits competition, (1) that determination may render the offeror’s proposal technically unacceptable in accordance with Section M, and (2) the Contracting Officer shall forward the matter to the appropriate authorities as prescribed by Federal Acquisition Regulation Part 3.3.

GOVERNMENT FURNISHED PROPERTY (PERFORMANCE) (SEP 1990)(NAVSEA 5252.245-9108)

The Government will provide only that property set forth below, notwithstanding any term or condition of this contract to the contrary. Upon Contractor's written request to the cognizant Task Order Manager, via the cognizant Procuring Contract Office (NSWC Crane), the Government will furnish the following for use in the performance of

this contract:

*To be identified upon issuance of Technical Instruction (TI).

TECHNICAL INSTRUCTIONS (MAY 1993) (NAVSEA 5252.242-9115)

(a) Performance of the work hereunder shall be subject to written technical instructions/technical direction letters signed by the Task Order Manager specified in Section G of this contract. As used herein, technical instructions/technical direction letters are defined to include the following:

(1) Directions to the Contractor which suggest pursuit of certain lines of inquiry, shift work emphasis, fill in details or otherwise serve to accomplish the contractual statement of work.(2) Guidelines to the Contractor which assist in the interpretation of drawings, specifications or technical portions of work description.

(b) Technical instructions must be within the general 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 "CHANGES" clause of this contract;
(3) increase or decrease the contract price or estimated contract amount (including fee), as applicable, the level of effort, or the time required for contract performance; or
(4) change any of the terms, conditions or specifications of the contract.

(c) If, in the opinion of the Contractor, any technical instruction/technical direction letters calls for effort outside the scope of the contract or is inconsistent with this requirement, the Contractor shall notify the Procuring Contracting Officer (NSWC Crane) in writing within ten (10) working days after the receipt of any such instruction. The Contractor shall not proceed with the work affected by the technical instruction/technical direction letter unless and until the Contractor is notified by the Procuring Contracting Officer (NSWC Crane) that the technical instruction/technical direction letter is within the scope of this contract.

(d) Nothing in the foregoing paragraph shall be construed to excuse the Contractor from performing that portion of the contractual work statement, which is not affected by the disputed technical instruction/technical direction letter.

NAVSEA 5252.202 9101 ADDITIONAL DEFINITIONS (MAY 1993)

As used throughout this contract, the following terms shall have the meanings set forth below:

(a) DEPARTMENT means the Department of the Navy.

(b) REFERENCES TO THE FEDERAL ACQUISITION REGULATION (FAR) All references to the FAR in this contract shall be deemed to also reference the appropriate sections of the Defense FAR Supplement (DFARS), unless clearly indicated otherwise.

(c) REFERENCES TO ARMED SERVICES PROCUREMENT REGULATION OR DEFENSE ACQUISITION REGULATION All references in this document to either the Armed Services Procurement Regulation (ASPR) or the Defense Acquisition Regulation (DAR) shall be deemed to be references to the appropriate sections of the FAR/DFARS.

(d) NATIONAL STOCK NUMBERS Whenever the term Federal Item Identification Number and its acronym FIIN or the term Federal Stock Number and its acronym FSN appear in the contract, order or their cited specifications and standards, the terms and acronyms shall be interpreted as National Item Identification Number (NIIN) and National

Stock Number (NSN) respectively which shall be defined as follows:

(1) National Item Identification Number (NIIN). The number assigned to each approved Item Identification under the Federal Cataloging Program. It consists of nine numeric characters, the first two of which are the National Codification Bureau (NCB) Code. The remaining positions consist of a seven digit non significant number.

(2) National Stock Number (NSN). The National Stock Number (NSN) for an item of supply consists of the applicable four position Federal Supply Class (FSC) plus the applicable nine position NIIN assigned to the item of supply.

ALLOTMENT OF FUNDS (MAY 1993) (NAVSEA 5252.232-9104)

(a) This task order is incrementally funded with respect to both cost and fee. The amount(s) presently available and allotted to this task order for payment of fee for incrementally funded contract line item number/contract subline item number (CLIN/SLIN), subject to the clause entitled "FIXED FEE" (FAR 52.216-8) or "INCENTIVE FEE" (FAR 52.216-10), as appropriate, is specified below. The amount(s) presently available and allotted to this task order for payment of cost for incrementally funded CLINs/SLINs is set forth below. As provided in the clause of this task order entitled "LIMITATION OF FUNDS" (FAR 52.232 22), the CLINs/SLINs covered thereby, and the period of performance for which it is estimated the allotted amount(s) will cover are as follows:

ITEM(S)	Alloted to Cost	Alloted to Fee	Estimated Period of Performance
4101	[redacted]	[redacted]	[redacted]
4102	[redacted]	[redacted]	[redacted]
4103	[redacted]	[redacted]	[redacted]
4104	[redacted]	[redacted]	[redacted]
4801	[redacted]	[redacted]	[redacted]
4802	[redacted]	[redacted]	[redacted]
4803	[redacted]	[redacted]	[redacted]
4804	[redacted]	[redacted]	[redacted]
6101	[redacted]	-	[redacted]
6102	[redacted]	-	[redacted]
6103	[redacted]	-	[redacted]
6104	[redacted]	-	[redacted]
6801	[redacted]	-	[redacted]
6802	[redacted]	-	[redacted]
6803	[redacted]	-	[redacted]
6804	[redacted]	-	[redacted]

(b) The parties contemplate that the Government will allot additional amounts to this task order from time to time for the incrementally funded CLINs/SLINs by unilateral task order modification, and any such modification shall state separately the amount(s) allotted for cost, the amount(s) allotted for fee, the CLINs/SLINs covered thereby, and the period of performance which the amount(s) are expected to cover.

(c) CLINs/SLINs are fully funded and performance under these CLINs/SLINs is subject to the clause of this task order entitled "LIMITATION OF COST" (FAR 52.232 20) or "LIMITATION OF COST (FACILITIES)" (FAR 52.232 21), as applicable.

(d) The Contractor shall segregate costs for the performance of incrementally funded CLINs/SLINs from the costs of performance of fully funded CLINs/SLINs.

SUBSTITUTION OF PERSONNEL (SEP 1990) (NAVSEA 5252.237-9106)

(a) The Contractor agrees that a partial basis for award of this task order is the list of key personnel proposed. Accordingly, the Contractor agrees to assign to this task order those key persons whose resumes were submitted with the proposal necessary to fulfill the requirements of the task order. No substitution shall be made without prior notification to and concurrence of the Contracting Officer in accordance with this requirement.

(b) All proposed substitutes shall have qualifications equal to or higher than the qualifications of the person to be replaced. The Contracting Officer shall be notified in writing of any proposed substitution at least forty five (45) days, or ninety (90) days if a security clearance is to be obtained, in advance of the proposed substitution. Such notification shall include: (1) an explanation of the circumstances necessitating the substitution; (2) a complete resume of the proposed substitute; and (3) any other information requested by the Contracting Officer to enable him/her to judge whether or not the Contractor is maintaining the same high quality of personnel that provided the partial basis for award.

HQ-C-2-0014 CONTRACTORS PROPOSAL (NAVSEA) (SEP 1990)

(a) Performance of this task order by the Contractor shall be conducted and performed in accordance with detailed obligations to which the contractor committed itself [redacted]

(b) The technical volume(s) of the Contractor's proposal is incorporated by reference and hereby made subject to the provisions of the "ORDER OF PRECEDENCE" (FAR 52.215-08) clause of this task order. Under the "ORDER OF PRECEDENCE" clause, the technical volume of the Contractor's proposal referenced herein is hereby designated as item (f) of the clause following "The Specifications" in order of precedence.

H30S LIMITATION OF LIABILITY - INCREMENTAL FUNDING (JUN 2004)

This task order is incrementally funded and the amount currently available for payment hereunder is limited to [redacted] The clause entitled, Limitation of Funds (FAR 52.232-22), applies. The Government is not obligated to reimburse the Contractor for costs incurred in excess of this amount unless additional funds are made available and are incorporated as a modification to this task order.

* To be completed at time of award and upon execution of each incremental funding modification.

H81S TRAVEL COSTS AND RESPONSIBILITIES

(a) Performance under this task order may require travel by contractor personnel. If travel, domestic or overseas, is required, the Contractor shall be responsible for making all needed arrangements for his personnel. This includes,

but is not limited to, medical examinations; immunizations; passports, visas, etc. and security clearances. If any work will take place on a U.S. Navy vessel, the Contractor shall obtain boarding authorization for all contractor personnel from the Commanding Officer of the vessel. Authorization shall be obtained prior to boarding.

(b) The Government will reimburse the Contractor for allowable travel costs incurred by the Contractor in performance of the task order in accordance with FAR subpart 31.2 or 31.3 as applicable.

HG10S CONTRACTUAL AUTHORITY AND COMMUNICATIONS (JUN 2004)

(a) Except as specified in subparagraph (b) below, no order, statement, or conduct of any Government personnel who visit the Contractor's facilities or in any other manner communicates with Contractor personnel during the performance of this task order shall constitute a change under the Changes clause of this task order.

(b) The Contractor shall not comply with any order, direction or request of Government personnel unless it is issued in writing and signed by the Contracting Officer, or is pursuant to specific authority otherwise included as a part of this task order.

(c) The Contracting Officer is the only person authorized to approve changes in any of the requirements of this task order and, notwithstanding provisions contained elsewhere in this task order, the said authority remains solely the Contracting Officer's. In the event the contractor effects any change at the direction of any person other than the Contracting Officer, the change will be considered to have been made without authority and no adjustment will be made in the task order price to cover any increase in charges incurred as a result thereof.

SECTION I CONTRACT CLAUSES

Note: All the provisions and clauses of SECTION I of the basic contract apply to this task order unless otherwise specified.

52.219-9 Small Business Subcontracting Plan (Apr 2008)

52.219-25 Small Disadvantaged Business participation Program—Disadvantaged Status and Reporting (Apr 2008)

52.227-14 Rights in Data --General (Jun 1987)

52.232-9 Limitation on Witholding of Payment (Apr 1984)

52.232-22 Limitation of Funds (Apr 1984)

252.204-7000 Disclosure of Information (Dec 1991)

252.227-7013 Rights in Technical Data - Noncommercial Items (Nov 1995)

252.227-7016 Rights in Bid or Proposal Information (Jun 1995)

252.227-7017 Identification and Assertion of Use, Release or Disclosure of Restrictions (Jun 1995)

252.227-7020 Rights in Special Works (Jun 1995)

252.227-7025 Limitations on the Use or Disclosure of Government-Furnished Information with Restrictive Legends (Jun 1995)

252.227-7030 Technical Data - Witholding of Payment (Mar 2000)

252-227-7037 Validation of Restrictive Marking on Technical Data (Sep 1999)

252.235-7011 Final Scientific or Technical Report (Sep 1999)

SECTION J LIST OF ATTACHMENTS

Attachment 1: Post Award DD254 Contract Security Classification Specification

Exhibit A: CDRLs A001 - A012

Attachment 3: GFI - Schedule (1): Boeing Aircraft Integration Study

Attachment 3: GFI - Schedule (2): EA-18G Baseline Performance Definition Document, OPNAV Ltr Ser no N780C3/U632381

Attachment 3: GFI - Schedule (3): Modular Open Systems Approach Program Managers Guide, Version 2

Attachment 3: GFI - NAVSEA Form 4320-2 Schedule C

Exhibit C: NGAEA Milestones and Budget Plans

Exhibit C: NGAEA Budget/Award Estimates