

AWARD/CONTRACT		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)			RATING D0-A2	PAGE OF PAGES 1 38	
2. CONTRACT (Proc. Inst. Ident.) NO. W9113M-07-C-0188		3. EFFECTIVE DATE 17 Aug 2007		4. REQUISITION/PURCHASE REQUEST/PROJECT NO.			
5. ISSUED BY US ARMY SPACE & MISSILE DEFENSE COMMAND PO BOX 1500 HUNTSVILLE AL 35807-3801		CODE W9113M	6. ADMINISTERED BY (If other than Item 5) DCMA NORTHROP GRUMMAN REDONDO BEACH ONE SPACE PARK REDONDO BEACH CA 90278-1078			CODE S0545A	
7. NAME AND ADDRESS OF CONTRACTOR (No., street, city, county, state and zip code) NORTHROP GRUMMAN SPACE & MISSION SYSTEMS SPACE TECHNOLOGY ONE SPACE PARK BLVD REDONDO BEACH CA 90278-1001				8. DELIVERY [] FOB ORIGIN [X] OTHER (See below)			
				9. DISCOUNT FOR PROMPT PAYMENT			
CODE 11982		FACILITY CODE		10. SUBMIT INVOICES (4 copies unless otherwise specified) TO THE ADDRESS SHOWN IN:		ITEM	
11. SHIP TO/MARK FOR See Schedule		CODE	12. PAYMENT WILL BE MADE BY DFAS-COLUMBUS CENTER DFAS-COMVEST ENTITLEMENT OPERATION P.O. BOX 182381 COLUMBUS OH 43218-2381			CODE HQ0339	
13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: [] 10 U.S.C. 2304(c)() [] 41 U.S.C. 253(c)()			14. ACCOUNTING AND APPROPRIATION DATA See Schedule				
15A. ITEM NO.	15B. SUPPLIES/ SERVICES		15C. QUANTITY	15D. UNIT	15E. UNIT PRICE	15F. AMOUNT	
SEE SCHEDULE							
15G. TOTAL AMOUNT OF CONTRACT						\$7,908,673.00	
16. TABLE OF CONTENTS							
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CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE							
17. [X] CONTRACTOR'S NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ copies to issuing office.) Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)				18. [] AWARD (Contractor is not required to sign this document.) Your offer on Solicitation Number W9113M-06-R-0018-0002 _____ including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.			
19A. NAME AND TITLE OF SIGNER (Type or print)				20A. NAME AND TITLE OF CONTRACTING OFFICER			
19B. NAME OF CONTRACTOR				19C. DATE SIGNED		20B. UNITED STATES OF AMERICA	
BY _____ (Signature of person authorized to sign)						BY _____ (Signature of Contracting Officer)	
						20C. DATE SIGNED 17-Aug-2007	

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	HEL TD BCS DESIGN CPFF SOW dated 21 Dec 2006 and HEL TD Program Objectives, "High Energy Laser Technology Demonstrator (HEL TD), Phase I and II Development Program, all paras. except 3.0 and 4.0 of SW-SMDC-RDTC-18-06, dated 27 Oct 06, at Section C. FOB: Destination				
				ESTIMATED COST	██████████
				FIXED FEE	██████████
				TOTAL EST COST + FEE	\$7,855,602.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
000101	Funding for CLIN 0001 CPFF FOB: Destination				
				ESTIMATED COST	██████████
				FIXED FEE	██████████
				TOTAL EST COST + FEE	\$0.00
	ACRN AA CIN: 00000000000000000000000000000000				\$2,123,404.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
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0002	Travel/Material COST Contractor shall provide all travel and material as required in the performance of SOW dated 21 Dec 2006 and HEL TD Program Objectives, "High Energy Laser Technology Demonstrator (HEL TD), Phase I and II Development Program, all paras. except 3.0 and 4.0 of SW-SMDC-RDTC-18-06, dated 27 Oct 06, at Section C. FOB: Destination			ESTIMATED COST	\$53,071.00
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ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
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000201	Funding for CLIN 0002 CPPF FOB: Destination			ESTIMATED COST	[REDACTED]
				FIXED FEE	[REDACTED]
				TOTAL EST COST + FEE	\$0.00
	ACRN AA				\$53,071.00
	CIN: 00000000000000000000000000000000				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003	Contract Data Requirements List(s) FFP Data to be delivered under this contract shall be that cited in the Contract Data Requirements Lists(s) (CDRLs), DD Form 1423s, Exhibit A, Consisting of Exhibit Line Item Numbers A001 through A00D, attached as set forth in Section J. NOT SEPERATELY PRICED/ENTER ZERO FOR NET AMOUNT. FOB: Destination				
NET AMT					\$0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004 OPTION	HEL TD BCS COMPLETION - Option I CPIF SOW dated 21 Dec 2006 and HEL TD Program Objectives, "High Energy Laser Technology Demonstrator (HEL TD), Phase I and II Development Program, all paras. except 2.0 and 4.0 of SW-SMDC-RDTC-18-06, dated 27 Oct 06, at Section C. FOB: Destination				
				TARGET COST	
				TARGET FEE	
				TOTAL TGT COST + FEE	
				MINIMUM FEE	
				MAXIMUM FEE	
				SHARE RATIO ABOVE TARGET	
				SHARE RATIO BELOW TARGET	

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005 OPTION	Travel/Material COST				

Contractor shall provide all travel and material as required in the performance SOW dated 21 Dec 2006 and of HEL TD Program Objectives, "High Energy Laser Technology Demonstrator (HEL TD), Phase I and II Development Program, all paras. except 2.0 and 4.0 of SW-SMDC-RDTC-18-06, dated 27 Oct 06, at Section C.
FOB: Destination

ESTIMATED COST



ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0006 OPTION	Contract Data Requirements List(s) FFP				

Data to be delivered under this contract shall be that cited in the Contract Data Requirements Lists(s) (CDRLs), DD Form 1423s, Exhibit B, Consisting of Exhibit Line Item Numbers B001 through B00C, as set forth in Section J. NOT SEPERATELY PRICED/ENTER ZERO FOR NET AMOUNT
FOB: Destination



NET AMT

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0007 OPTION	HEL TD SYSTEM ENGR - Option II CPFF SOW dated 21 Dec 2006 and HEL TD Program Objectives, "High Energy Laser Technology Demonstrator (HEL TD), Phase I and II Development Program, all paras. except 2.0 and 3.0 of SW-SMDC-RDTC-18-06, dated 27 Oct 06, at Section C. FOB: Destination				
				ESTIMATED COST	██████████
				FIXED FEE	██████████
				TOTAL EST COST + FEE	██████████

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0008 OPTION	Travel/Material COST Contractor shall provide all travel and material as required in the performance of SOW dated 21 Dec 2006 and HEL TD Program Objectives, "High Energy Laser Technology Demonstrator (HEL TD), Phase I and II Development Program, all paras. except 2.0 and 3.0 of SW-SMDC-RDTC-18-06, dated 27 Oct 06, at Section C. FOB: Destination				
				ESTIMATED COST	██████████

ITEM NO 0009	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	Contract Data Requirements List(s) FFP Data to be delivered under this contract shall be that cited in the Contract Data Requirements Lists(s) (CDRLs), DD Form 1423s, Exhibit C, Consisting of Exhibit Line Item Numbers C001 through C008, attached as forth in Section J. FOB: Destination				

NET AMT

CLAUSES INCORPORATED BY FULL TEXT

COMPLETION TYPE COST REIMBURSEMENT CONTRACT:

a. Performance of Contract Line Items 0001 (and optional CLINS 0004 and 0007) shall be accomplished on a completion basis as defined in FAR 16.306(d)(1). Pending satisfactory completion of the task, fee payments are provisional and are not final. Fee payments will not become final unless and until the contractor performs the task required by the CLIN and delivers data required and such are accepted by the Government as being satisfactory. In the event the task cannot be completed by the contractor within the estimated cost of the CLIN, the Government may require completion of the task without increase in fee, provided the Government increases the estimated cost of the CLIN under the LIMITATION OF COST or FUNDS contract clause.

b. CLIN 0003, 0006 and 0009 will be considered complete based upon a determination that all data and reports have been submitted and accepted, as set forth in Block 8 of each exhibit line item number of the DD Form 1423.

INCENTIVE FEE

This contract provides for payment of fee on an incentive fee basis for CLIN 0004 (if exercised) summarized as follows:

The incentive fee for CLIN 0004 is comprised of [redacted] Technical and [redacted] Cost. **The cost portion will be evaluated at the end of the CLIN 0004 period of performance. The technical performance will be evaluated at each milestone event below.**

TECHNICAL PERFORMANCE [redacted]

Target Performance Incentive Fee: [redacted]
 Max Performance Incentive Fee: [redacted]
 Min Performance Incentive Fee: [redacted]

Milestone 1 – Subsystem Demonstrations ([redacted] of technical performance pool):

Target Performance Incentive Fee: [redacted]

Max Performance Incentive Fee: [REDACTED]
Min Performance Incentive Fee: [REDACTED]

	Min Fee	Target Fee	Max Fee
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Milestone 2 – BCS Integration and Test ([REDACTED] of technical performance pool):

Target Performance Incentive Fee: [REDACTED]
Max Performance Incentive Fee: [REDACTED]
Min Performance Incentive Fee: [REDACTED]

	Min Fee	Target Fee	Max Fee
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

Milestone 3 – Design Reference Missions ([REDACTED] of technical performance pool):

Target Performance Incentive Fee: [REDACTED]
Max Performance Incentive Fee: [REDACTED]
Min Performance Incentive Fee: [REDACTED]

	Min Fee	Target Fee	Max Fee
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

COST ([REDACTED]):

Target Cost Incentive Fee [REDACTED]
Maximum Cost Incentive Fee [REDACTED]
Minimum Cost Incentive Fee [REDACTED]

INCENTIVE FEE POOLS:

TECHNICAL PERFORMANCE: [REDACTED] (To be evaluated at each milestone)

POTENTIAL	TECHNICAL FEE	TECHNICAL	NOT EARNED REMOVED FROM
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	TECHNICAL FEE (Max)	AVAILABLE (Target)	FEE EARNED	CONTRACT
MILESTONE 1	██████████	██████████	██████████	██████████
MILESTONE 2	██████████	██████████	██████████	██████████
MILESTONE 3	██████████	██████████	██████████	██████████

COST: ██████ - (To be evaluated at the end of CLIN 0004)

POTENTIAL COST FEE (Maximum)	COST FEE AVAILABLE (Target)	COST FEE EARNED	COST FEE NOT EARNED REMOVED FROM CONTRACT
██████████	██████████	██████████	██████████

Section C - Descriptions and Specifications

STATEMENT OF OBJECTIVES**HIGH ENERGY LASER TECHNOLOGY DEMONSTRATOR (HEL TD)
STATEMENT OF WORK (SOW)****21 December 2006****1.0 HEL TD PROGRAM OBJECTIVE**

The objective of the High Energy Laser Technology Demonstrator (HEL TD) program is to demonstrate in a relevant operational environment at the High Energy Laser Systems Test Facility (HELSTF) that a mobile solid-state laser (SSL) weapon system can provide an effective mission capability to counter rocket, artillery, and mortar (C-RAM) projectiles. [REDACTED]

Though the initial scenarios and target list will be limited under this acquisition, the HEL TD mission capability may be expanded in the future to a User Operational Evaluation System (UOES) that can provide air and missile defense against additional types [REDACTED]

The HEL TD Phase III system shall be capable of prosecuting an end-to-end HEL engagement, including:

- Receiving multiple track data files from tactical Surveillance and Acquisition (S&A) sensors when integrated into the appropriate US Army BMC3I architecture in FY13
- Acquiring target objects from track data files
- Tracking, classifying, identifying, and prioritizing acquired target objects
- Maintaining track of acquired target objects through obstruction or loss of fine track
- Determining optimum engagement parameters including target aim point and time to engage the target object
- Directing and maintaining the HEL beam on the target object
- Verifying kill of a tracked target object and retargeting to the next prioritized target object.

The HEL TD Phase III system shall be capable, at a minimum, of successfully engaging those targets described in the High Energy Laser Technology Demonstrator (HEL TD) Performance Specification, Version 1, dated 6 November 2006. Additional system requirements are also found in the High Energy Laser Technology Demonstrator (HEL TD) Performance Specification, Version 1, dated 6 November 2006.

2.0. PHASE I BASIC CONTRACT

Northrop Grumman Space Technology (NGST) shall complete the design for a ruggedized Beam Control System on a Vehicle Platform through a Preliminary Design Review (PDR). The design shall accommodate, but not include, Adaptive Optics.

2.1 SYSTEMS ENGINEERING APPROACH

NGST will perform the systems engineering for the entire HEL TD system to the extent required to define the requirements for the HEL TD BCS and Vehicle Platform since this BCS will later be integrated into the HEL TD system. NGST shall derive BCS requirements (based on the High Energy Laser Technology Demonstrator (HEL TD) Performance Specification, Version 1, dated 6 November 2006) to meet the physical size/weight constraints for a fully integrated HEL TD on a military tactical vehicle (no larger than HEMTT-class); to accept and transport HEL beams of the alternative shapes and wavefronts specified in Black Box Specifications A, B, and C of RFP W9113M-06-R-0018, dated 6 November 2006; and, to the maximum extent possible, be modular and open, capable of integrating advanced components after the initial BCS configuration is fabricated and tested. An example of advanced component integration is an improved adaptive optics system for correcting HEL beam distortions due to atmospheric turbulence effects.

2.2 BCS PRELIMINARY DESIGN

NGST shall develop the preliminary design of the BCS. This design must meet the derived BCS requirements based on the High Energy Laser Technology Demonstrator (HEL TD) Performance Specification, Version 1, dated 6 November 2006 that are captured in the BCS Detail Specification and other relevant documents developed on the contract. NGST shall conduct an Interim Technical Review (ITR) that includes information normally developed for a BCS Requirements Review to include software, BCS Functional Review, and initial HEL TD system concept trade studies, including a recommendation on the Vehicle Platform.

NGST shall provide the following at the ITR:

- Final BCS Performance Specification
- Functional Analysis and Allocation of BCS requirements to assembly level and lower, as required
- Trade studies and analyses for Vehicle Platform recommendation and Surrogate C3 Subsystem
- Identification that the risks associated with the BCS design are at acceptable levels for engineering development
- Identification that BCS design selections have been optimized through appropriate trade study analyses
- Identification of all software components

NGST shall conduct a BCS Preliminary Design Review (PDR) and provide the following:

- Draft HEL TD BCS Detail Specification
- Draft HEL TD BCS Interface Control Document that includes BCS/Vehicle Platform, BCS/C3 Subsystem, and BCS/LSS interfaces
- Draft HEL TD BCS Test Plan
- Design data defining major assemblies including a Surrogate C3 Subsystem (hardware and software) to be used only during BCS testing
- Verification that the risks associated with the BCS design are at acceptable levels for engineering development
- Verification that the BCS design selections have been optimized through appropriate trade study analyses
- Analyses, reports, “ility” analyses, trade studies, logistics support analysis data, and design documentation
- Technical Performance Measurement data and analysis
- HEL TD Software Development Plan consistent with the Software Engineering Institute’s CMMI Level 3 or higher including identification of software metrics and reuse opportunities
- BCS engineering breadboards, laboratory models, test models, mockups, and prototypes used to support the design
- Approach for configuration management, quality control, and safety
- Available supplier data describing specific components.
- List of Long Lead items to be ordered prior to CDR.

2.3 IDENTIFICATION AND MITIGATION OF TECHNICAL RISK

NGST shall apply its risk management approach that includes planning, identifying, analyzing, handling and monitoring technical and programmatic risks, throughout the Phase I Basic Contract effort to assure that the program and engineering development can proceed with low risk.

3.0 PHASE II BCS COMPLETION OPTION

NGST shall complete the design, fabricate/procure, and integrate all of the BCS components into the ruggedized HEL TD BCS. The BCS must be integrated on the Vehicle Platform. BCS verification and validation will be conducted at a NGC facility and the integrated BCS will be delivered in place prior to shipment to HELSTF for final test and evaluation.

3.1 SYSTEM ENGINEERING

NGST shall finalize the systems engineering for the entire HEL TD system to the extent required to define the requirements for the HEL TD BCS and Vehicle Platform since this BCS will later be integrated into the HEL TD system.

NGST shall establish and maintain configuration management and quality control processes to ensure the completed Phase II HEL TD BCS and Vehicle Platform are produced and maintained according to their specifications.

NGST shall establish a safety program and follow it for the duration of the Phase II, Option 1 program. NGST shall identify, control, and document the safety hazards associated with this effort and the control methods necessary to eliminate or control the hazards.

3.2 DETAILED DESIGN

NGST will complete the BCS detailed design. [REDACTED]

[REDACTED] The Surrogate C3 Subsystem provides interface functions for the HEL TD BCS components and basic command and control functions for the BCS Test and Evaluation. The High Energy Laser Technology Demonstrator (HEL TD) Performance Specification, Version 1, dated 6 November 2006, describes the Surrogate C3 Subsystem functionality. [REDACTED]

[REDACTED]

[REDACTED]

3.3 FABRICATION AND ASSEMBLY

NGST shall fabricate or procure and assemble the equipment (hardware/software) that comprises the BCS subsystem, including the vehicle, low power surrogate HEL (SHEL), the C3 surrogate and electrical power subsystems.

NGST shall procure long lead items prior to the critical design review to meet the planned schedule for the BCS completion, based on the design maturity of laser hardware/software elements

3.4 INTEGRATION AND TEST

NGST shall assemble and test the subsystems prior to delivery for system integration, where feasible. Hardware and personnel safety shall be emphasized in subsystem and system test planning. NGST shall develop and execute a verification plan to confirm that the BCS meets the requirements in the BCS Detail Specification.

NGST shall conduct a Test Readiness Review (TRR) and provide the following:

- Final HEL TD BCS Test Plan
- HEL TD BCS Test Procedures
- Test Readiness analyses (configuration, resources, risks, fall-back plans).

NGST shall verify and validate by test and simulation, in NGC or subcontractor facility(ies), the capability of the BCS software and hardware to align the optics to meet the HEL TD emplacement requirement, the capability to accept handover from S&A sensors, and beam director pointing and tracking accuracy.

NGST shall ship the BCS with a surrogate C3 subsystem (integrated on the Vehicle Platform) and SHEL to HELSTF, and integrate with an external S&A sensor to provide early propagation testing and tracking demonstrations.

NGST shall provide support for operator training and multiple site set-up.

NGST shall demonstrate the Low Power Design Reference Missions (DRMs) defined in Appendix A of the High Energy Laser Technology Demonstrator (HEL TD) Performance Specification, Version 1, dated 6 November 2006. These missions will use the SHEL, not the HEL. The scope of this activity shall not exceed 5 days of testing.

3.5 IDENTIFICATION AND MITIGATION OF RISK

NGST shall continue to apply its risk management approach that includes planning, identifying, analyzing, handling and monitoring technical and programmatic risks throughout the Phase II, Option 1 program effort to ensure that the engineering development, fabrication/procurement, integration, test, and evaluation can proceed with low risk.

4.0 PHASE II SYSTEMS ENGINEERING (SE) OPTION

NGST shall complete the trade studies and analysis to define HEL TD system design requirements and concept through a Systems Functional Review (SFR).

4.1 SYSTEMS ENGINEERING APPROACH

NGST shall employ its well-established systems engineering approach to evolve and verify an integrated and balanced technology solution for the HEL TD system.

4.2 SYSTEM TRADES AND DESIGN SYNTHESIS

NGST shall complete HEL TD system concept definition trade studies; risk management; cost analysis for development, testing, and potential operations and maintenance; C-RAM architecture interface with higher echelon command, control and communications (C3) and S&A sensors; and subsystem requirements definition and flow-down of functional and technical performance requirements. The SE effort must consider alternative types of SSLs that could be integrated into the HEL TD based on interface information provided in Black Box Specifications A, B, and C of RFP W9113M-06-R-0018, dated 6 November 2006, and incorporate the BCS concept that is selected by the government and developed under the Phase II BCS Completion Option. To the extent possible, the HEL TD system concept must be modular and utilize an open architecture.

NGST shall conduct a System Requirements Review (SRR) and provide the following:

- Updated HEL TD Performance Specification
- Preliminary allocation of HEL TD Requirements to hardware and software subsystems
- Identification of all software components
- Comprehensive risk assessment
- Initial supportability analysis

NGST shall conduct a System Functional Review (SFR) and provide the following:

- Final HEL TD Performance Specification
- Functional Analysis and Allocation of requirements to assembly level and lower, as required
- Draft ICDs between all subsystems
- Draft HEL TD design concept with proposed development schedule and projected rough order-of-magnitude life cycle costs
- Verification that the risks associated with the HEL TD design are at acceptable levels for engineering development
- Verification that the design selections have been optimized through appropriate trade study analyses
- Supporting analyses, e.g., logistics, training, human systems integration, etc., and plans are identified and complete where appropriate
- Technical Performance Measurement data and analysis

4.3 MODELING AND SIMULATION TOOLS

NGST shall employ models and simulations with demonstrated capabilities as tools for analyzing projected subsystem performance and predicting operational performance of the integrated HEL TD concept in engagements against a variety of RAM targets.

4.4 IDENTIFICATION AND MITIGATION OF TECHNICAL RISK

NGST shall continue to apply its risk management approach that includes planning, identifying, analyzing, handling, and monitoring technical and programmatic risks throughout the Phase II, Option 2 program effort to ensure that the engineering development, fabrication/procurement, integration, test, and evaluation can proceed with low risk.

5.0 HEL TD PROGRAM MANAGEMENT

NGST shall provide program management. NGST's program manager will coordinate directly with the Government regarding technical performance, cost, and schedule. NGST shall hold programmatic reviews in conjunction with scheduled technical reviews, or as directed by the government.

5.1 ORGANIZATION STRUCTURE

NGST shall establish a HEL TD program office and program management structure responsible for execution of all contract requirements. This program organization shall include clearly defined reporting relationships for team members and all major subcontractors.

5.2 PERSONNEL QUALIFICATIONS AND ALLOCATION

Key personnel shall be in accordance with the contract. NGST shall obtain written consent of the contracting officer prior to replacing these key personnel.

5.3 PROGRAM MANAGEMENT

NGST shall manage the overall contract effort. NGST shall execute business and administrative planning, organization, direction, coordination, control, and approval necessary to accomplish this program. NGST shall ensure proper program planning and control, timely problem identification and resolution, as well as frequent technical and programmatic status reports and interaction with the government's lead Contracting Officer Technical Representative (COTR). NGST shall ensure a timely response to all government communications.

NGST shall define a program plan that responds to all contract requirements. This plan will be the basis for tracking and reporting program progress throughout the duration of the contract. NGST will maintain and, as required, update the plan to reflect schedule or milestone changes. NGST will coordinate any changes to the plan with the government.

NGST shall promote strong management, communications, and coordination with subcontractors, associate contractors and suppliers.

NGST shall identify a program review authority (PRA) and implement monthly internal program reviews consistent with its core processes and established organizational procedures.

NGST shall provide the CDRLs defined in Section 6.0, Deliverables.

5.4 RISK MANAGEMENT

NGST shall apply a risk management approach that includes planning, identifying, analyzing, handling and monitoring technical and programmatic risks to assure we proceed with low risk.

5.5 RESOURCES

Unless otherwise specified, NGST and/or its subcontractors shall provide all facilities, equipment, and services necessary to accomplish this program. Government Furnished Resources/Equipment/Facilities/Services to be provided are as identified in the contract. NGST shall provide all CDRL deliverables electronically, through a secure electronic file server, if desired by the Government, provided competition sensitive and proprietary information is protected.

6.0 DELIVERABLES

CDRL deliverables shall be in accordance with the Section J attachment entitled "Contracts Data Requirements List (CDRLS)."

APPENDIX A

High Energy Laser Technology Demonstrator (HEL TD)
Phase I and II Development Program
HEL TD PROGRAM Objectives

SW-SMDC-RDTC-18-06 (27 October 2006)

1.0 HEL TD Program Objective

The objective of the High Energy Laser Technology Demonstrator (HEL TD) program is to demonstrate in a relevant operational environment at the High Energy Laser Systems Test Facility (HELSTF) that a mobile solid state laser (SSL) weapon system can provide an effective mission capability to counter rocket, artillery, and mortar (C-RAM) projectiles. [REDACTED]

Though the initial scenarios and target list will be limited under this acquisition, the HEL TD mission capability may be expanded in the future to a User Operational Evaluation System (UOES) that can provide air and missile defense against additional types [REDACTED]

The HEL TD shall be capable of prosecuting an end-to-end HEL engagement, including:

- Receiving multiple track data files from tactical Surveillance and Acquisition (S&A) sensors when integrated into the appropriate US Army BMC3I architecture in FY13
- Acquiring target objects from track data files
- Tracking, classifying, identifying, and prioritizing acquired target objects
- Maintaining track of acquired target objects through obstruction or loss of fine track
- Determining optimum engagement parameters including target aim point and time to engage the target object
- Directing and maintaining the HEL beam on the target object
- Verifying kill of a tracked target object and retargeting to the next prioritized target object

The HEL TD shall be capable, at a minimum, of successfully engaging those targets described in HEL TD Performance Specification (DRAFT), Appendix A. Additional system requirements are also found in the HEL TD Performance Specification (DRAFT).

The HEL TD shall be a three-phase program. This SOW appendix defines the program objectives for HEL TD with emphasis on Phase I and Phase II.

- Phase I Basic Contract. This effort will be awarded in FY07, and requires that the contractor(s) complete the design for a ruggedized BCS on a Vehicle Platform through a preliminary design review (PDR). Since this BCS will be later integrated into the HEL TD system, this effort will require the contractor to perform systems engineering for the entire HEL TD system to the extent required to define the requirements for the HEL TD BCS and Vehicle Platform.
- Phase II Options.

- BCS Completion Option. Contractor must complete the design and fabrication of the ruggedized HEL TD BCS, integrate it on the Vehicle Platform, and conduct test and evaluation at HELSTF.
- Systems Engineering (SE) Option. Contractor must complete the trade studies and analysis to define HEL TD system design requirements and concept through a System Functional Review (SFR).
- Phase III Mobile Demonstrator Contract. This effort will be awarded in FY09, and will require the contractor to ruggedize a solid state laser selected by the Government in FY09; and complete the HEL TD system design, fabrication, integration, and verification testing. The contractor shall be required to make the laser and the BCS contractor(s) part of its team (directed subcontractors).

2.0 Phase I Basic Contract Objectives.

The contractor(s) shall derive BCS requirements (based on HEL TD Performance Specification (draft)) and conduct a preliminary design of the BCS to meet the physical size/weight constraints for a fully integrated HEL TD on a military tactical vehicle (no larger than HEMTT-class). The BCS must be designed to accept and transport HEL beams of alternative shapes and wavefronts. To the maximum extent possible, the BCS design must be modular and open, capable of integrating advanced components after the initial BCS configuration is fabricated and tested. An example of advanced component integration is an improved adaptive optics system for correcting HEL beam distortions due to atmospheric turbulence effects. The contractor(s) shall conduct an Interim Technical Review (ITR) that includes information normally developed for a BCS Requirements Review to include software, BCS Functional Review, and initial HEL TD system concept trade studies, including a recommendation on the Vehicle Platform. At the ITR, the contractor(s) shall provide as a minimum:

- Delivery of the final BCS Performance Specification
- Functional Analysis and Allocation of BCS requirements to assembly level and lower, as required
- Trade studies and analyses for Vehicle Platform recommendation and Surrogate C3 Subsystem
- Identify that the risks associated with the BCS design are at acceptable levels for engineering development
- Identify that BCS design selections have been optimized through appropriate trade study analyses
- Identification of all software components

At the final BCS PDR, the contractor(s) shall provide as a minimum:

- Draft HEL TD BCS Detail Specification
- Draft HEL TD BCS Interface Control Document that includes BCS/Vehicle Platform, BCS/C3 Subsystem, and BCS/LSS interfaces
- Draft HEL TD BCS Test Plan
- Design data defining major assemblies including a Surrogate C3 Subsystem (hardware and software) to be used only during BCS testing
- Verification that the risks associated with the BCS design are at acceptable levels for engineering development
- Verification that the BCS design selections have been optimized through appropriate trade study analyses
- Analyses, reports, “ility” analyses, trade studies, logistics support analysis data, and design documentation
- Technical Performance Measurement data and analysis
- HEL TD Software Development Plan consistent with the Software Engineering Institute’s CMMI Level 3 or higher including identification of software metrics and reuse opportunities
- BCS engineering breadboards, laboratory models, test models, mockups, and prototypes used to support the design
- Approach for configuration management, quality control, and safety
- Supplier data describing specific components.

3.0 Phase II BCS Completion Option Objectives

3.1 BCS Design, Fabrication, Integration

The contractor shall complete the design, fabricate/procure, and integrate all BCS components into the HEL TD BCS. The BCS must be integrated on the Vehicle Platform. The BCS shall not be based on proprietary

components or assemblies (with isolated, government approved exceptions), and should use industry standards and higher-level programming languages as practical. The contractor shall conduct a CDR and Test Readiness Review (TRR). The CDR shall include:

- Final HEL TD BCS Detail Specification
- Final HEL TD BCS/Vehicle Platform Interface Control Document
- Updated HEL TD BCS Test Plan
- Analysis of human integration design factors
- Updated risk assessment
- Software metric review
- Critical safety item identification
- Critical manufacturing process plans
- BCS, Vehicle Platform and Surrogate C3 Subsystem drawings and associated instructions (≥ [REDACTED] complete)
- Updated supportability analyses including design for reliability/maintainability, technical support data, and maintenance procedures

The TRR shall include:

- Final HEL TD BCS Test Plan
- HEL TD BCS Test Procedures
- Test Readiness analyses (configuration, resources, risks, fall-back plans)

3.2 Surrogate C3 Subsystem

Since the BCS will be completed, integrated on the Vehicle Platform, and tested prior to final development of the HEL TD system, the contractor shall develop a Surrogate C3 Subsystem as part of the BCS Completion Option. The Surrogate C3 Subsystem provides interface functions for the HEL TD BCS components, and basic command and control functions for the BCS Test and Evaluation (para.4.3). The draft HEL TD Performance Specification describes the Surrogate C3 Subsystem functionality. The Surrogate C3 Subsystem shall be able to accept target cue data directly from an external tactical S&A sensor.

3.3 BCS Test and Evaluation

The BCS integrated on the Vehicle Platform will be the first subsystem completed for the HEL TD, and must be available for early testing and demonstrations. The contractor shall develop and execute a verification plan to confirm that the BCS meets the requirements in the BCS Detail Specification. The contractor shall verify and validate by test and simulation in his facility the capability of the BCS software and hardware to align the optics to meet the HEL TD emplacement requirement, the capability to accept handover from S&A sensors, and beam director pointing and tracking accuracy. The contractor shall deliver the BCS with a Surrogate C3 Subsystem (integrated on the Vehicle Platform) and a low power surrogate HEL (SHEL) to HELSTF, and integrate with an external S&A sensor to provide early propagation testing and tracking demonstrations. The contractor shall provide support for operator training and multiple site set-up. The contractor shall demonstrate the Low Power Design Reference Missions specified in Appendix A of the HEL TD Performance Specification (draft). These missions will use the SHEL, not the HEL.

3.4 Configuration Management and Quality Control:

The contractor shall establish and maintain configuration management and quality control processes to ensure the completed Phase II HEL TD BCS and Vehicle Platform are produced and maintained according to specification.

3.5 Safety

The contractor shall establish a safety program and follow it for the duration of the Phase II BCS Completion Option program. The contractor shall identify, control, and document the safety hazards associated with this effort and the control methods necessary to eliminate or control the hazards.

3.6 Environmental Engineering Requirements

The environmental engineering requirements for the Phase II BCS Completion Option shall be in accordance with AR20-1 and 32CFR, Part 651.

4.0 Phase II Systems Engineering (SE) Option Objectives

The contractor shall complete HEL TD system concept definition trade studies; risk management; cost analysis for development, testing, and potential operations and maintenance; C-RAM architecture interface with higher echelon command, control and communications (C3) and S&A sensors; and subsystem requirements definition and flow-down of functional and technical performance requirements. The SE effort must consider alternative types of SSLs that could be integrated into the HEL TD based on interface information provided in the SOO Appendix A, and incorporate the BCS concept that is selected by the government and developed under the Phase II BCS Completion Option. To the maximum extent possible, the HEL TD system concept must be modular and utilize an open architecture. The contractor shall conduct an SRR and SFR under this effort. The SRR shall include:

- Updated HEL TD Performance Specification
- Preliminary allocation of HEL TD Requirements to hardware and software subsystems
- Identification of all software components
- Comprehensive risk assessment
- Initial supportability analysis

The SFR shall include:

- Delivery of the final HEL TD Performance Specification
- Functional Analysis and Allocation of requirements to assembly level and lower, as required
- Draft ICDs between all subsystems
- Draft HEL TD design concept with proposed development schedule and projected rough-order-of-magnitude life cycle costs
- Verification that the risks associated with the HEL TD design are at acceptable levels for engineering development
- Verification that the design selections have been optimized through appropriate trade study analyses
- Supporting analyses, e.g., logistics, training, human systems integration, etc., and plans are identified and complete where appropriate
- Technical Performance Measurement data and analysis

5.0 Program Management

The Phase I and II contractor(s) shall provide program management. A program manager shall be assigned to coordinate directly with the government regarding technical performance, cost, and schedule. The Phase I and II contractor(s) shall hold programmatic reviews in conjunction with scheduled technical reviews, or as directed by the government.

6.0 Deliverables

The deliverables under this contract are as specified in the Contract Data Requirements List (CDRL), DD Form 1423-1. The deliverable for the Phase II BCS Completion Option includes a tested Beam Control Subsystem integrated on a vehicle platform at the contractor's facility.

SSL Black Box Interface Specifications

Potential SSL devices should be considered as black boxes. Table A.1 lists the typical interface specifications to an SSL black box. This Table has been completed with quantitative data from SSL candidate providers.

Table A.1. SSL Interface Specifications

Interface	Parameter	Value	Units
Optical*	Output Power		kilowatts
	Wavelength		microns
	Beam Quality		x DL
	Beam Shape	Beam intensity image data file	
	Beam Jitter		microradians
	Jitter Power Spectral Density	Data File	
Mechanical	Dimensions (L x W x H)		feet
	Wet Weight		pounds
Electrical*	Current Regulated DC Input Power to Diodes		kilowatts
	Ancillary Input Power		kilowatts
Thermal*	Type Coolant(s)		
	Liquid Cooling Load**		kilowatts
	Max. Input Pressure		psi
	Coolant Pressure Drop***		psi
	Control Temperature		degrees Celsius
	Flow Rate***		gpm
	Coolant Conditioning	Consistent with Diode Needs	
Environments	Operating Temp. Range		degrees Celsius
	Operating Humidity		
	Transport and Storage		
Operation	Run Time	Phase III J-HPSSL profile	
	Ready to Full Power Transition Time	1	seconds
Other			

* At full power.

** Does not include flow heating.

*** Nominal for water. Coolant selection should be consistent with system environmental req'ts.

Section E - Inspection and Acceptance

CLAUSES INCORPORATED BY REFERENCE

52.246-3	Inspection Of Supplies Cost-Reimbursement	MAY 2001
52.246-5	Inspection Of Services Cost-Reimbursement	APR 1984
52.246-8	Inspection Of Research And Development Cost Reimbursement	MAY 2001
252.246-7000	Material Inspection And Receiving Report	MAR 2003

Section F - Deliveries or Performance

CLAUSES INCORPORATED BY REFERENCE

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

CLAUSES INCORPORATED BY FULL TEXT

The contractor shall provide all level of effort, material/equipment, data/software, and reports required by CLINS 0001, 0002 and 0003 within thirteen (13) months after the effective date of the contract.

The contractor shall provide all level of effort, material/equipment, data/software, and reports required by CLINS 0004, 0005 and 0006 within twenty-four (24) months after the date of modification exercising the option.

The contractor shall provide all level of effort, material/equipment, data/software, and reports required by CLINS 0007, 0008 and 0009 within nine (9) months after the date of modification exercising the option.

MILESTONE EVENTS AND PERFORMANCE PERIOD: The contractor shall accomplish the following milestone events within the specified performance period to assure timely completion of total contract requirements:

<u>MILESTONE EVENT</u>		<u>WITHIN MONTHS AFTER DATE OF CONTRACT</u>
<u>Contract Milestones</u>	<u>CLIN</u>	
BCS Interim Technical Review	0001	AOC+6mo
BCS Preliminary Design Review	0001	AOC+12mo
BCS Critical Design Review	0004	Ex+9mo
BCS Range Test	0004	Ex+23mo
HEL TD System Functional Review	0007	Ex+8mo

AOC is award date of contract

Ex is exercise date of option

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 21 7 2040 0000 36 2216 633004L9600 2512 W31RPD7225ESBF 7HEE01 S01021
AMOUNT: \$2,176,475.00
CIN 00000000000000000000000000000000: \$2,176,475.00

CLAUSES INCORPORATED BY FULL TEXT

252.232-7003 ELECTRONIC SUBMISSION OF PAYMENT REQUESTS (MAY 2006)

(a) Definitions. As used in this clause--

(1) Contract financing payment and invoice payment have the meanings given in section 32.001 of the Federal Acquisition Regulation.

(2) Electronic form means any automated system that transmits information electronically from the initiating system to all affected systems. Facsimile, e-mail, and scanned documents are not acceptable electronic forms for submission of payment requests. However, scanned documents are acceptable when they are part of a submission of a payment request made using one of the electronic forms provided for in paragraph (b) of this clause.

(3) Payment request means any request for contract financing payment or invoice payment submitted by the Contractor under this contract.

(b) Except as provided in paragraph (c) of this clause, the Contractor shall submit payment requests using one of the following electronic forms:

(1) Wide Area WorkFlow-Receipt and Acceptance (WAWF-RA). Information regarding WAWF-RA is available on the Internet at [REDACTED]

(2) Web Invoicing System (WInS). Information regarding WInS is available on the Internet at [REDACTED]

(3) American National Standards Institute (ANSI) X.12 electronic data interchange (EDI) formats.

(i) Information regarding EDI formats is available on the Internet at [REDACTED]

(ii) EDI implementation guides are available on the Internet at [REDACTED]

(4) Another electronic form authorized by the Contracting Officer.

(c) If the Contractor is unable to submit a payment request in electronic form, or DoD is unable to receive a payment request in electronic form, the Contractor shall submit the payment request using a method mutually agreed to by the Contractor, the Contracting Officer, the contract administration office, and the payment office.

(d) In addition to the requirements of this clause, the Contractor shall meet the requirements of the appropriate payment clauses in this contract when submitting payments requests.

(End of clause)

INVOICING AND VOUCHERING :

a. When authorized by the Defense Contract Audit Agency (DCAA) in accordance with DFARS 242.803(b)(i)(C), the contractor may submit interim vouchers directly to paying offices. Such authorization does not extend to the first and final vouchers. Submit first vouchers to the cognizant DCAA office. Final vouchers will be submitted to the ACO with a copy to DCAA.

b. Upon written notification to the contractor, DCAA may rescind the direct submission authority.

c. Should the contractor decline to submit interim vouchers directly to paying offices or if the contractor receives written notification that DCAA has rescinded the direct submission authority, public vouchers, together with any necessary supporting documentation, shall be submitted to the cognizant Defense Contract Audit Agency (DCAA) Office, prior to payment by the Finance and Accounting Office specified in Block 12, Page 1, Section A, of Standard Form 26.

d. The contractor shall identify on each public voucher: The accounting classification reference number (ACRN) assigned to the accounting classification which pertains to the charges billed, e.g. "ACRN: AA in bold type on the face page of the voucher. Since vouchers are paid by ACRN, it is necessary that the ACRN be shown on each voucher.

e. Department of Defense requires that the Taxpayer Identification Number (TIN) be placed on all certified payment vouchers, including non-profit organizations, when submitting payment to the disbursing office. The only exception is foreign vendors, which will have the word "foreign" in the TIN field. Invoices will be returned to the vendor without payment if a TIN is not provided.

f. The contractor may include in provisional vouchers fixed fee based on the percentage of work completed, subject to the withholding reserve of the contract clause titled "Fixed Fee." The Contracting Officer may elect to withhold or accelerate fee payment based upon the Contractor's actual performance as compared to the milestone events target dates as set forth in Section F hereof.

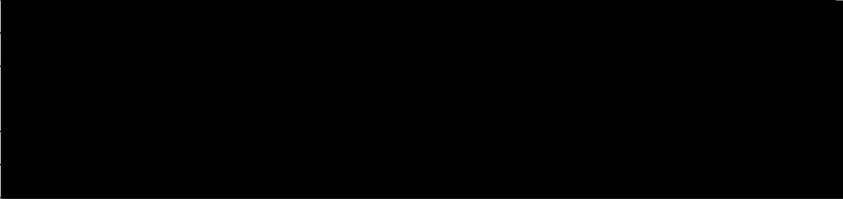
Substitute the below paragraph f. for CLIN 0004:

f. The contractor may include in provisional vouchers [REDACTED] of the total combined fee pool for cost and performance target fee based on the percentage of work completed per Section F, Incentive Milestones. The Contracting Officer may elect to withhold or accelerate fee payment based upon the Contractor's actual performance as compared to the milestone events target dates as set forth in Section F hereof.

g. The Paying Office shall ensure that the voucher is disbursed for each ACRN as indicated on the voucher (or as specified herein).

IDENTIFICATION OF CORRESPONDENCE: All correspondence and data submitted by the contractor under this contract shall reference the contract number.

CONTRACTING ACTIVITY REPRESENTATIVES:

	Contractual Matters	Technical Matters
NAME:		
ORGANIZATION CODE:		
TELEPHONE NUMBERS:		
COMMERCIAL:		
DEFENSE SWITCHED NETWORK (DSN):		
EMAIL:		

Section H - Special Contract Requirements

CLAUSES INCORPORATED BY FULL TEXT

PUBLIC RELEASE OF INFORMATION:

a. In accordance with DFARS 252.204-7000, Disclosure of Information, The Contractor shall not release to anyone outside the Contractor's organization any unclassified information, regardless of medium (e.g., film, tape, document), pertaining to any part of this contract or any program related to this contract, unless the Contractor has written approval or the information is otherwise in the public domain before the date of release.

b. Requests for approval shall identify the specific information to be released, the medium to be used, and the purpose for the release. The Contractor shall submit its request to the Technical Monitor noted in the contract, Section H, at least 45 days before the proposed date for release. All material to be cleared shall be sent by certified mail/return receipt requested to:

U.S. Army Space and Missile Defense Command
[REDACTED]
P. O. Box 1500
Huntsville, AL 35807-3801

c. The Technical Monitor shall process the request in accordance with SMDC form 614-R.

d. If there is no response within 30 days, the Contractor shall resubmit the request to:

U.S. Army Space and Missile Defense Command
[REDACTED]
P. O. Box 1500
Huntsville, AL 35807-3801

e. The Contractor agrees to include a similar requirement in each subcontract under this contract. Subcontractors shall submit requests for authorization to release through the prime contractor.

DISTRIBUTION CONTROL OF TECHNICAL INFORMATION:

a. The following terms applicable to this clause are defined as follows:

(1) Technical Document. Any recorded information that conveys scientific and technical information or technical data.

(2) Scientific and Technical Information. Communicable knowledge or information resulting from or pertaining to conducting and managing a scientific or engineering research effort.

(3) Technical Data. Recorded information related to experimental, developmental, or engineering works that can be used to define an engineering or manufacturing process or to design, procure, produce, support, maintain, operate, repair, or overhaul material. The data may be graphic or pictorial delineations in media such as drawings or photographs, text in specifications or related performance or design type documents, or computer printouts. Examples of technical data include research and engineering data, engineering drawings, and associated

lists, specifications, standards, process sheets, manuals, technical reports, catalog-item identifications, and related information and computer software documentation.

b. Except as may otherwise be set forth in the Contract Data Requirements List (CDRL), DD Form 1423, (i) the distribution of any technical document prepared under this contract, in any stage of development or completion, is prohibited without the approval of the Contracting Officer and (ii) all technical documents prepared under this contract shall initially be marked with the following distribution statement, warning, and destruction notice:

(1) DISTRIBUTION STATEMENT E - Distribution authorized to DoD components only due to proprietary information and/or Arms Export Control Act Information. Other requests shall be referred to [REDACTED]

(2) WARNING - This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751 et seq.) or the Export Administration Act of 1979, as amended, Title 50, U.S.C., app 2401 et seq. Violation of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DOD Directive 5230.25.

(3) DESTRUCTION NOTICE - For classified documents, follow the procedures in DOD 5220.22-M, National Industrial Security Program Operating Manual (NISPOM), Chapter 5, Section 7, or DOD 5200.1-R, Information Security Program Regulation, Chapter IX. For unclassified, limited documents, destroy by any method that will prevent disclosure of contents or reconstruction of the document.

c. As a part of the review of preliminary or working draft technical documents, the Government will determine if a distribution statement less restrictive than the statement specified above would provide adequate protection. If so, the Government's approval/comments will provide specific instructions on the distribution statement to be marked on the final technical documents before primary distribution.

TECHNICAL COGNIZANCE AND TECHNICAL DIRECTION:

a. The U.S. Army Space and Missile Defense Command is the cognizant Government technical organization for this contract and will provide technical direction as defined herein. Technical direction shall be exercised by the following Project Engineer:

Name	Office symbol	Phone Number
[REDACTED]		

b. Technical direction, as defined in this clause is the process by which the progress of the contractor's technical efforts are reviewed and evaluated and guidance for the continuation of the effort is provided by the Government. It also includes technical discussions and, to the extent required and specified elsewhere in this contract, defining interfaces between contractors; approving test plans; approving preliminary and critical design reviews; participating in meetings; providing technical and management information; and responding to request for research and development planning data on all matters pertaining to this contract. The contractor agrees to accept technical direction only in the form and procedure set forth herein below.

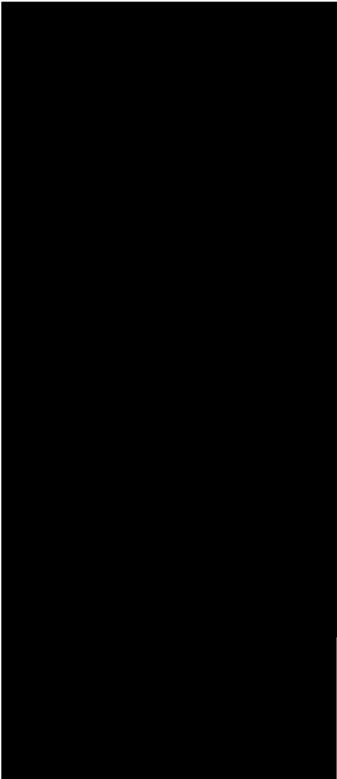
c. Except for routine discussions having no impact on contractor performance, any and all technical direction described in paragraph b. above shall only be authorized and binding on the contractor when issued in

writing and signed by a Government official designated in a. above. The Technical Direction shall not effect or result in a change within the meaning of the "CHANGES" clause, or any other change in the Scope of Work, price, schedule, or the level of effort required by the contract. Such changes must be executed by the Contracting Officer as a Modification-Change Order, or as a Modification-Supplemental Agreement, as appropriate. It is emphasized that such changes are outside the authority of the Government officials designated in a. above who are not authorized to issue any directions which authorize the contractor to exceed or perform less than the contract requirements. Notwithstanding any provision to the contrary in any Technical Directive, the estimated cost of this contract, and, if this contract is incrementally funded, the amount of funds allotted, shall not be increased or deemed to be increased by issuance thereof.

KEY PERSONNEL:

a. The key personnel listed in paragraph b below are considered to be critical to the successful performance of this contract. Prior to replacing these key personnel, the contractor shall obtain written consent of the contracting officer. In order to obtain such consent, the contractor must provide advance notice of the proposed changes and must demonstrate that the qualifications of the proposed substitute personnel are generally equivalent to or better than the qualifications of the personnel being replaced.

b. Key Personnel List:

<u>NAME</u>	<u>POSITION</u>
	<u>Program Manager</u>
	<u>Chief Scientist</u>
	<u>Chief Systems Engineer</u>
	<u>Software Development Lead</u>
	<u>Systems Engineering and Integration</u>
	<u>Beam Control Subsystem</u>
	<u>C3 Subsystem</u>
	<u>Vehicle Platform</u>
	<u>Electrical Power Subsystem</u>
	<u>Laser Subsystem</u>
	<u>Test and Evaluation</u>

(This list shall be negotiated by the parties. Personnel identified as key individuals in the offeror's proposal shall be candidates for this list, however, it is not intended that all such proposed key individuals must be listed in this clause.)

ORGANIZATIONAL CONFLICT OF INTEREST CLAUSE:

a. The effort to be performed under this contract may require access to the proprietary information of other companies and consequently creates a potential significant conflict of interest as set forth in Federal Acquisition Regulation (FAR) 9.505-4. It is the intention of the Government to prevent creation of an unfair competitive advantage as a result of knowledge gained through access to proprietary information. Consequently, when access to proprietary information of other companies is required, the contractor shall (1) enter into a written agreement with the other companies to protect their proprietary information from unauthorized use or disclosure for as long as it remains proprietary; and (2) refrain from using such proprietary information for any purpose other than that for which it was furnished.

b. An executed copy of all proprietary information agreements shall be furnished to the Contracting Officer within fifteen (15) calendar days of execution.

c. The contractor shall include this clause in all subcontracts which may require access to proprietary information of other firms. When the clause is included in a subcontract, the term "Contracting Officer" shall represent the head of the Contracts Office of the prime contractor.

PATENTS - REPORTING OF SUBJECT INVENTIONS:

a. The interim and final invention reports shall be submitted on DD Form 882, Report of Inventions and Subcontracts, see [REDACTED] and click on the Special Announcements link to see the instructions. In accordance with DFARS 252.227-7039 and FAR 52.227-12, interim reports shall be furnished every twelve (12) months and final reports shall be furnished within three (3) months after completion of the contracted work. In accordance with FAR 27.305-3(e), when a contractor fails to disclose a subject invention the applicable withholding of payments provision may be invoked.

b. The contractor shall include the clause at DFARS 252.227-7039 in all subcontracts with small businesses and non profit organizations, regardless of tier, for experimental, developmental, or research work.

c. The prime contractor shall account for the interim and final invention reports submitted by the subcontractor(s). The prime contractor's invention reports shall contain a copy of each of the subcontractor's invention reports.

Continuation of DoD Contractor Services At Government Facilities Within Conus

1. Contractor personnel who normally provide services at government facilities and who are designated as emergency personnel by a DoD Component are expected to use all means at their disposal to continue to provide such services, in accordance with the terms and conditions of the contract, during periods of crisis situations.

2. To ensure that emergency personnel services under the contract are performed and/or delivered by the contractor during times of heightened security and/or limited access to a government facility, the Task Order Monitor/Technical Monitor and prime contractor in coordination with the Contracting Officer may enter into an agreement that the hours/duties specified in the contract/Task Order may be worked at varying times and locations as long as such is consistent with the Government's requirement and will have no negative impact on the quality of

the effort to be performed. The Task Order/Technical Monitor shall immediately seek approval of the Contracting Officer of any such agreement.

3. The Contracting Officer may take any of the following actions, depending on the severity and length of the situation:

a. In accordance with FAR 52.242-15, the Contracting Officer may, at any time, issue a written stop-work order to stop all or any part of the work called for under the contract. If a stop work order is issued, the contractor is required to take all reasonable steps to minimize the incurrence of costs allocable to the stopped work.

b. Direct contractor personnel designated mission essential emergency personnel to report to their duty station at government facilities as usual for continuing work not subject to any stop work order.

c. Direct non-essential contractor personnel who normally work at government facilities to report to their corporate office as their temporary duty station for work not subject to any stop work order.

d. Direct, on a case-by-case basis, non-essential contractor personnel who normally work at government facilities to telecommute for performance of work not subject to any stop work order.

4. For Task Orders performed under emergency situations within CONUS, the hours worked shall be billed at the rates specified in the Task Order, regardless of where performance takes place. This provision in no way relieves the contractor from performance of the direct productive person hours (DPPHs) as stated in the Task Order.

5. When required in emergency/crisis situations, the contractor shall report daily to the Technical Monitor the status and location of all DoD contractor employees. The Technical Monitor shall relay such information to the Contracting Officer.

6. Nothing in this provision shall be construed to change any element of the contract or the terms and conditions therein.

The contractor and its subcontractors have provided an Attachment entitled "Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software" which was signed by [REDACTED] and dated 3 Aug 07. This Attachment is incorporated herein by reference as if fully set forth. The Attachment identifies and provides information pertaining to certain technical data (including computer software documentation) and computer software that the contractor and subcontractors claim to qualify for delivery with less than Unlimited Rights. The contractor agrees not to withhold delivery of the technical data or software based on its claims. The Government has not investigated nor agreed to the validity of the contractor's claims and therefore reserves all its rights regarding the technical data/software in question, to include those rights set forth in the Rights in Technical Data - Noncommercial Items (Nov 1995) clause (DFARS 252.227-7013), the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation (Jun 1995) clause (DFARS 252.227-7014), and the Validation clauses at DFARS 252.227-7019 and 252.227-7037. The contractor reserves the right to submit additional entries to the aforementioned Attachment in accordance with the provisions of paragraphs (e)(3) of DFARS 252.227-7013 and 252.227-7014.

The contractor shall have, maintain, and follow written procedures sufficient to assure that restrictive markings are used only when authorized by the terms of this contract and shall maintain records sufficient to justify the validity of any restrictive markings on any technical data or computer software delivered under this contract. The contractor agrees that the Government has Unlimited Rights in any technical data or computer software not listed

(or appropriately submitted for inclusion) in the Attachment and that such data or software will not be subject to any restrictive markings or legends.

YEAR 2000 COMPLIANCE:

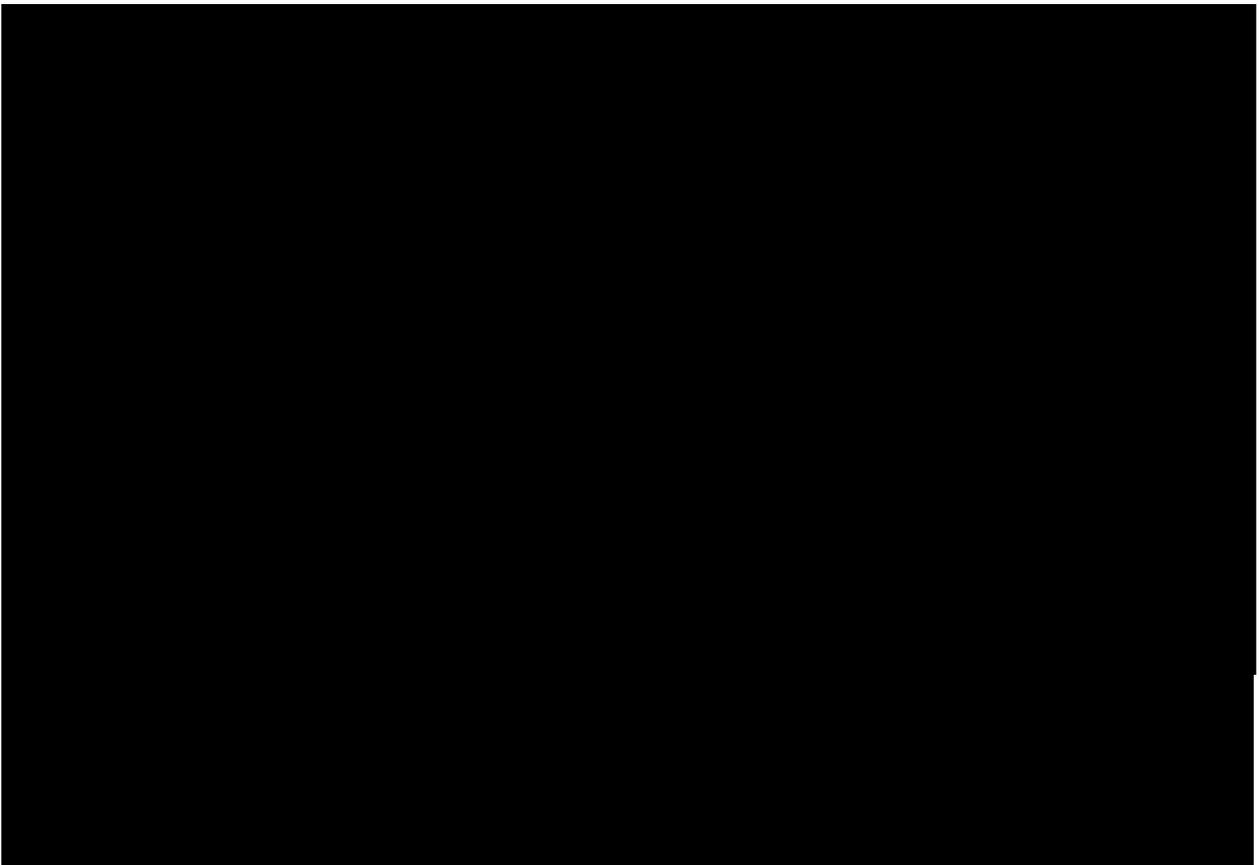
The Contractor shall ensure products provided under this contract, to include hardware, software, firmware, and middleware, whether acting alone or combined as a system, are Year 2000 compliant as defined in FAR Part 39.

OPTIONS

Any Options, CLINS 0004, 0005, 0006, 0007, 0008 and 0009 of this contract may be exercised, at the unilateral option of the Government, by giving notice to the contractor in the form of a unilateral modification to the contract. The options may be exercised concurrently or independently following the BCS Preliminary Design Review.

MOBILE DEMONSTRATOR

HEL TD Phase III Mobile Demonstrator: The government may decide to contract for the execution of the Phase III Mobile Demonstrator activity during the performance period of the anticipated Systems Engineering Option.



INCENTIVE FEE

Payment of fee for CLIN 0004 (if exercised) is on an incentive fee basis as determined by cost and technical performance. The cost incentive fee shall encompass [REDACTED] of the total contact incentive fee with the remaining [REDACTED] available for technical performance.

TECHNICAL [REDACTED]

In order to earn the technical performance incentive fee, the table below depicts three milestones to be utilized to demonstrate progress. Milestone 1 is worth [REDACTED] milestone 2 is [REDACTED] and milestone 3 is [REDACTED] of the technical performance incentive fee pool. Each milestone includes measurable performance parameters that carry an importance weighting and a percent contribution at each milestone. The table includes threshold and objective system performance requirements (values) to be measured at Milestone 3 that are related to target and maximum incentive fee for each parameter.

TPM Incentive Fee Criteria Table

				MS 1	MS 2	MS 3	
	Units	Threshold	Objective	Assembly Demos**	Contractor Facility Demos**	HELSTF	WT
[REDACTED]	km	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	km	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	sec	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	μrad	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	μrad	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	μrad/sec	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	hr	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

*Applies when angle ≤ [REDACTED]

** Specific values to be measured for Milestone 1, prior to integrated system level testing at Milestone 2 and 3, will be traceable to system level performance and determined NLT the Preliminary Design Review (PDR).

All values assume that potential errors due to the limitations of scoring device accuracy have been accounted for.

Incentive fee for technical performance increases linearly from the target fee to the maximum fee based on the pro-rated performance achieved between the target and objective performance levels shown above. Minimum incentive fee is earned if threshold performance is not obtained.

SSL INTERFACE INFORMATION

The government will select the SSL that will be ruggedized and intergrated into the HEL TD during Phase III. The Appendix A SSL information (referenced in Section J) has been provided for candidate SSLs from which the government will make the SSL selection in FY09. The government will periodically update this information.

OPTION EXERCISE

A. Any options, CLINs 0004, 0005, 0006, 0007, 0008 and 0009 of the contract may be exercised at the unilateral option of the Government, by giving notice to the contractor in the form of a unilateral modification to the contract. The total duration of this contract, including options, shall not exceed thirty-seven (37) months. If the

Government exercises any option hereunder, all contractual terms and conditions shall apply during the option period.

- b. CLINs 0004, 0005 and 0006 may be exercised no later than the end of the basic period of performance.
- c. CLINs 0007, 0008 and 0009 may be exercised no later than the end of the basic period of performance.

GOVERNMENT FURNISHED PROPERTY

The government will provide HELSTF range support during execution of CLIN 0004. This includes required facilities, support equipment, targets, range radar support, office space and government personnel support to perform 1) the required contactor development testing and 2) Design Reference Mission (DRM) testing. Refer to Section J for Range Support/GFE provided during contractor development testing. The government projects that ten low-power DRM tests per day will be accomplished, which will require a total of five test days to complete the fifty low power DRM tests.

Section I - Contract Clauses

CLAUSES

FAR 52.216-8, Fixed Fee, applies to the Cost Plus Fixed Fee CLINs.

FAR 52.216-10, Incentive Fee, applies to the Cost Plus Incentive Fee CLINs.

FAR 52.222-2, "Payment of Overtime Premiums," is applicable to CLINs 0001 and 0007.

CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	JUL 2004
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	SEP 2005
52.204-2	Security Requirements	AUG 1996
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.204-7	Central Contractor Registration	JUL 2006
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	JAN 2005
52.215-2	Audit and Records--Negotiation	JUN 1999
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-11	Price Reduction for Defective Cost or Pricing Data--Modifications	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	OCT 2004
52.215-16	Facilities Capital Cost of Money	JUN 2003
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	JUL 2005
52.215-19	Notification of Ownership Changes	OCT 1997
52.215-21 Alt II	Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data--Modifications (Oct 1997) - Alternate II	OCT 1997
52.216-7	Allowable Cost And Payment	DEC 2002
52.216-8	Fixed Fee	MAR 1997
52.216-10	Incentive Fee	MAR 1997
52.217-9	Option To Extend The Term Of The Contract	MAR 2000
52.219-8	Utilization of Small Business Concerns	MAY 2004
52.219-9 Alt II	Small Business Subcontracting Plan (Jul 2005) Alternate II	OCT 2001
52.219-16	Liquidated Damages-Subcontracting Plan	JAN 1999
52.222-3	Convict Labor	JUN 2003
52.222-19	Child Labor -- Cooperation with Authorities and Remedies	JAN 2006
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
52.222-39	Notification of Employee Rights Concerning Payment of Union Dues or Fees	DEC 2004
52.223-6	Drug-Free Workplace	MAY 2001
52.223-14	Toxic Chemical Release Reporting	AUG 2003
52.225-13	Restrictions on Certain Foreign Purchases	FEB 2006
52.227-1 Alt I	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 Applications--Classified Subject Matter	APR 1984
52.227-12	Patent Rights--Retention By The Contractor (Long Form)	JAN 1997
52.228-7	Insurance--Liability To Third Persons	MAR 1996
52.230-2	Cost Accounting Standards	APR 1998
52.232-9	Limitation On Withholding Of Payments	APR 1984
52.232-17	Interest	JUN 1996
52.232-22	Limitation Of Funds	APR 1984
52.232-23 Alt I	Assignment of Claims (Jan 1986) - Alternate I	APR 1984
52.232-25	Prompt Payment	OCT 2003
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.233-1	Disputes	JUL 2002
52.233-3 Alt I	Protest After Award (Aug 1996) - Alternate I	JUN 1985
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
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 Alt V	Changes--Cost-Reimbursement (Aug 1987) - Alternate V	APR 1984
52.244-2	Subcontracts	AUG 1998
52.244-5	Competition In Subcontracting	DEC 1996
52.244-6	Subcontracts for Commercial Items	FEB 2006
52.245-5 Dev	Government Property (Cost-Reimbursement, Time-and-Material, or Labor-Hour Contracts) Deviation	MAY 2004
52.245-9	Use And Charges	AUG 2005
52.246-23	Limitation Of Liability	FEB 1997
52.246-24 Alt I	Limitation Of Liability--High Value Items (Feb 1997) - Alternate I	APR 1984
52.247-1	Commercial Bill Of Lading Notations	FEB 2006
52.248-1	Value Engineering	FEB 2000
52.249-6	Termination (Cost Reimbursement)	MAY 2004
52.249-14	Excusable Delays	APR 1984
52.252-6	Authorized Deviations In Clauses	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	DEC 2004
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	Alt A Central Contractor Registration (52.204-7) Alternate A	NOV 2003
252.204-7005	Oral Attestation of Security Responsibilities	NOV 2001
252.204-7006	Billing Instructions	OCT 2005
252.205-7000	Provision Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	MAR 1998
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	OCT 1998
252.219-7003	Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (DOD Contracts)	APR 1996
252.223-7004	Drug Free Work Force	SEP 1988
252.225-7004	Reporting of Contract Performance Outside the United States and Canada--Submission after Award	JUN 2005
252.225-7012	Preference For Certain Domestic Commodities	JUN 2004
252.225-7013	Duty-Free Entry	JUN 2006
252.226-7001	Utilization of Indian Organizations and Indian-Owned Economic Enterprises, and Native Hawaiian Small Business Concerns	SEP 2004
252.227-7013	Rights in Technical Data--Noncommercial Items	NOV 1995
252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation	JUN 1995
252.227-7015	Technical Data--Commercial 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 Restrictions	JUN 1995
252.227-7019	Validation of Asserted Restrictions--Computer Software	JUN 1995
252.227-7020	Rights In Data--Special Works	JUN 1995
252.227-7025	Limitations on the Use or Disclosure of Government- Furnished Information Marked with Restrictive Legends	JUN 1995
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
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 1999
252.232-7003	Electronic Submission of Payment Requests	MAY 2006
252.232-7010	Levies on Contract Payments	SEP 2005
252.235-7010	Acknowledgment of Support and Disclaimer	MAY 1995
252.235-7011	Final Scientific or Technical Report	NOV 2004
252.242-7004	Material Management And Accounting System	NOV 2005
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	NOV 2005
252.245-7001	Reports Of Government Property	MAY 1994
252.247-7023	Transportation of Supplies by Sea	MAY 2002
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000

CLAUSES INCORPORATED BY FULL TEXT

52.222-2 PAYMENT FOR OVERTIME PREMIUMS (JUL 1990)

(a) The use of overtime is authorized under this contract if the overtime premium cost does not exceed [REDACTED] or the overtime premium is paid for work --

- (1) Necessary to cope with emergencies such as those resulting from accidents, natural disasters, breakdowns of production equipment, or occasional production bottlenecks of a sporadic nature;
- (2) By indirect-labor employees such as those performing duties in connection with administration, protection, transportation, maintenance, standby plant protection, operation of utilities, or accounting;
- (3) To perform tests, industrial processes, laboratory procedures, loading or unloading of transportation conveyances, and operations in flight or afloat that are continuous in nature and cannot reasonably be interrupted or completed otherwise; or
- (4) That will result in lower overall costs to the Government.

(b) Any request for estimated overtime premiums that exceeds the amount specified above shall include all estimated overtime for contract completion and shall--

- (1) Identify the work unit; e.g., department or section in which the requested overtime will be used, together with present workload, staffing, and other data of the affected unit sufficient to permit the Contracting Officer to evaluate the necessity for the overtime;
- (2) Demonstrate the effect that denial of the request will have on the contract delivery or performance schedule;
- (3) Identify the extent to which approval of overtime would affect the performance or payments in connection with other Government contracts, together with identification of each affected contract; and
- (4) Provide reasons why the required work cannot be performed by using multishift operations or by employing additional personnel.

* Insert either "zero" or the dollar amount agreed to during negotiations. The inserted figure does not apply to the exceptions in paragraph (a)(1) through (a)(4) of the clause.

(End of clause)

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):



(End of clause)

Section J - List of Documents, Exhibits and Other Attachments

CLAUSES INCORPORATED BY FULL TEXT

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

<u>TITLE</u>	<u>DATE</u>	<u># OF PGS</u>
Contract Data Requirements List (CDRLS)	20 Oct 06	33
Contract Security Classification Specification (DD Form 254-E) (FOUO)	8 Aug 07	6
HEL TD Performance Specification (FOUO) (Incorporated by reference)	06 Nov 06	22
HEL TD Design Reference Missions (FOUO) Provided under separate cover	06 Nov 06	138
HEL TD DRM Trajectories (FOUO) Provided under separate cover	06 Nov 06	4
Contractor Data Assertion	03 Aug 07	1
SSL Black Box Interface Specifications (FOUO) Incorporated by reference.	various	various
Range Support GFE	08 Aug 07	2
Explanation of HEL TD Design Reference Missions (DRMs) And Incentive Fee Scoring Methodology, CLIN 0004 (FOUO)	08 Aug 07	6
	12 Jan 07	49
High Energy Laser Technology Demonstrator (HEL TD) Small Business Participation and Small Business Subcontracting Plan		

Certifications and Representations provided by the contractor are hereby incorporated by reference.